Año 7, N° 2 Febrero 2021

Comisión Nacional contra la Biopiratería

Foto: Bernard DUPONT

Imagen: Red Chilli Hideaway, Kampala, UGANDA / Aguacates (*Persea americana*)

Extraído de: ***https://upload.wikimedia.org/wikipedia/commons/thumb/7/7d/Avocados_%28Persea_americana%29_%2818159574242%29.jpg/800px-Avocados_%28Persea_americana%29_%2818159574242%29.jpg***

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BIOPAT | PERÚ

TEMA: PALTA

Indecopi

INSTITUTO NACIONAL DE DEFENSA DE LA COMPETENCIA
Y DE LA PROTECCIÓN DE LA PROPIEDAD INTELECTUAL

Persea americana

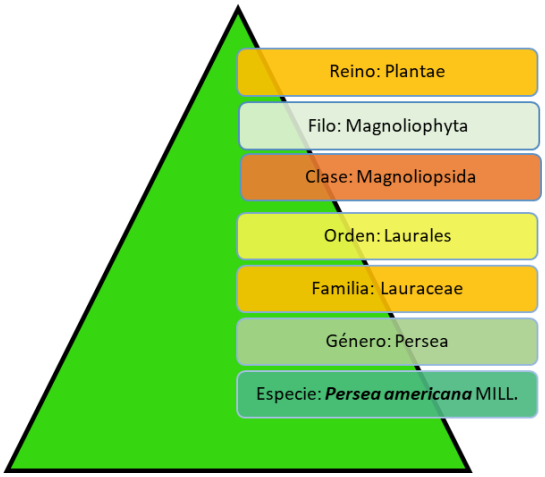
TABLA DE CONTENIDOS

I. INTRODUCCIÓN

El género *Persea*, incluye tres especies, ***P. schiedeana***, ***P. parvifolia*** y ***P. americana***. La palta presenta diferentes variantes fenotípicas debido a diferentes condiciones geográficas, climáticas, genéticas y evolutivas **[Shafer, 2015]**. ***Persea americana*** tiene cinco variantes sin valor comercial y tres variantes, drymifolia, guatemalensis y americana, que se conocen comúnmente como razas mexicana, guatemalteca y antillana, respectivamente **[Perea, 2010]**,

Como promedio, el árbol de aguacate puede alcanzar una altura de hasta 20 metros; sin embargo, cuando se cultiva en plantaciones comerciales, no se deja crecer más de 5 m, para facilitar las prácticas de control fitosanitario, cosecha, poda y fertilización foliar. Esta especie vegetal es de tronco grueso y con hojas alargadas, con varias ramificaciones que generan un follaje denso. Se considera un cultivo perenne debido a que se cultiva durante todo el año.. **[Monografía de cultivo, 2011]** citado en **[Pérez, 2015]**

Taxonomía de *Persea americana*



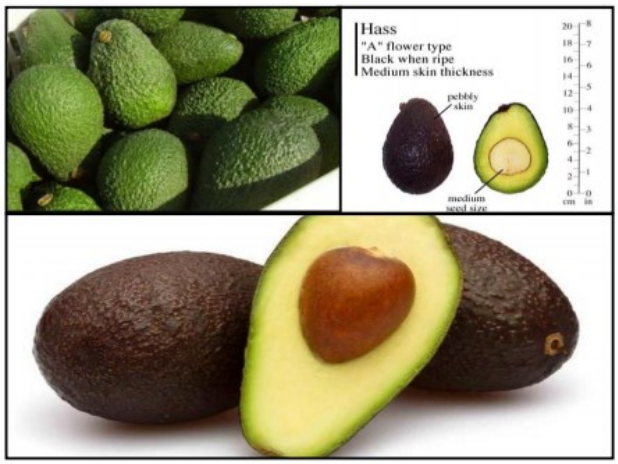
El fruto es una drupa, en forma de pera, de color verde claro a verde oscuro y de violeta a negro, cáscara rugosa con una pulpa verde amarillenta y un hueso central muy grande. Existen aproximadamente unas 400 variedades, por lo que podemos encontrar frutos de formas y pesos diferentes, que pueden llegar a pesar de 150 g a 350 g. **[Rodríguez AN, 2005]** citado en **[Pérez, 2015]**

Distribución en Perú de *Persea americana*

El cultivo de palta en el Perú se localiza en las regiones de Áncash, Arequipa, Ayacucho, Ica, Moquegua, Lambayeque, Piura y Tacna. Los cultivares de palta, se conoce con los siguientes nombres: cultivar Hass, fuerte, Naval, Bacon, Zutano y Gwen.

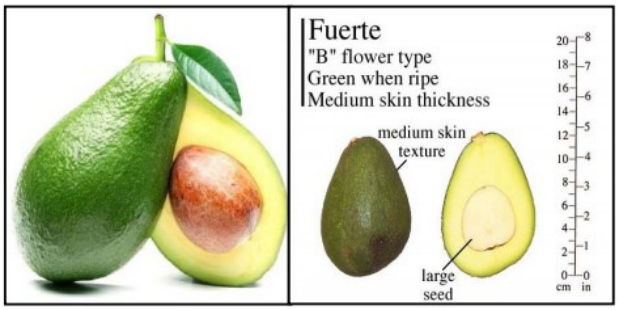
Cultivares de *Persea americana*

Cultivar Hass

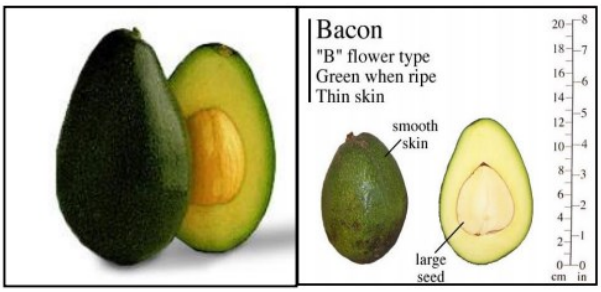


Cultivar Naval

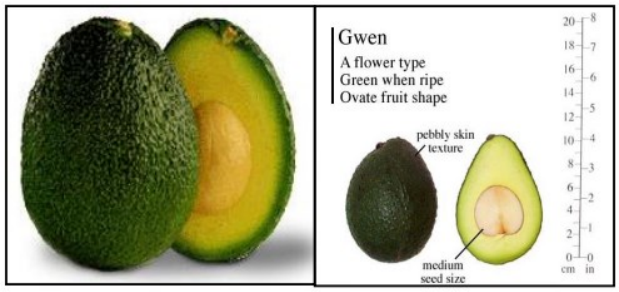
Cultivar Fuerte



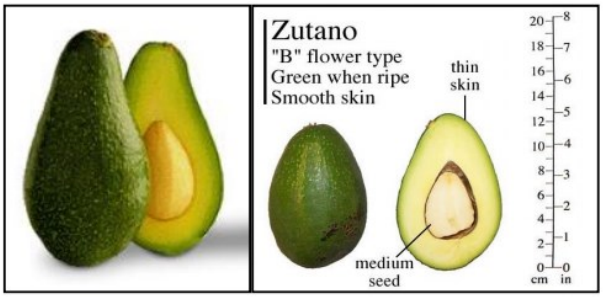
Cultivar Bacon



Cultivar Gwen

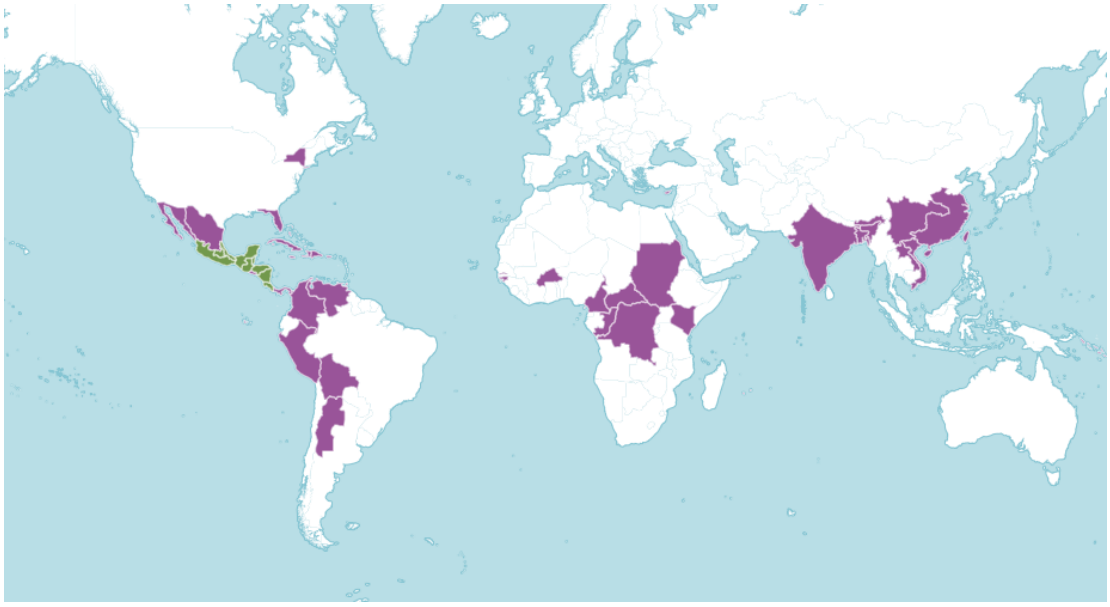


Cultivar Zutano



Extraído de: http://repositorio.uncp.edu.pe/bitstream/handle/UNCP/1300/INFORME%20DE%20EXPERIENCIA%20PROFESIONAL.pdf?sequence=1&isAllowed=y

Distribución mundial de *Persea americana*



Extraído de: http://powo.science.kew.org/taxon/urn:lsid:ipni.org:names:325643-2#source-KBD

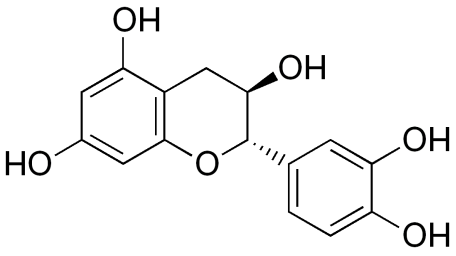
Nativo Introducido

La palta es nativa de: Belice, Costa Rica, Guatemala, Honduras, Centro de México, Golfo de México, Sudeste de México, Sudoeste de México, Nicaragua.

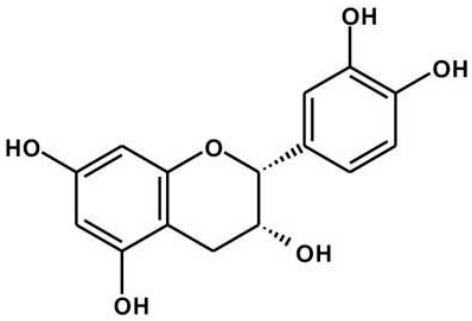
Es introducida en: Noroeste de Argentina, Assam, Bahamas, Bangladesh, Bolivia, Burkina, Camerún, Islas Caimán, República Centroafricana, Pacífico Centroamericano, Centro-Sur de China, Sureste de China, Colombia, Congo, Islas Cook, Cuba, Chipre, República Dominicana, Este del Himalaya, Isla de Pascua, El Salvador, Fiji, Florida, Galápagos, Gambia, Guinea-Bissau, Islas del Golfo de Guinea, Hainan, Haití, India, Jamaica, Kenia, Laos, Islas de Sotavento, Mauricio, Noreste de México, Noroeste de México, Nueva York, Panamá, Perú, Puerto Rico, Rodrigues, Reunión, Islas Salomón, Sudán, Taiwán, Trinidad-Tobago, Venezuela, Antillas venezolanas, Vietnam, Islas de Barlovento, Zaire e Islas de Barlovento. **[Powo Science]**

II. COMPOSICIÓN QUÍMICA

Catequina



(-) -epicatequina



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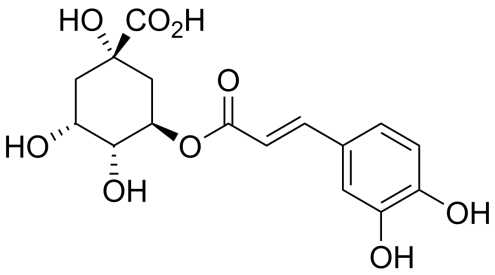

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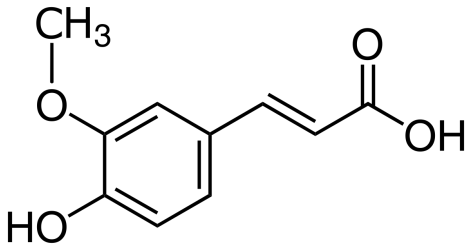
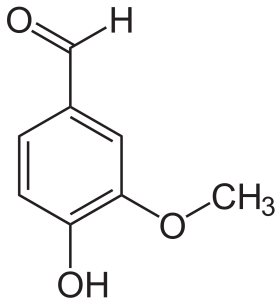
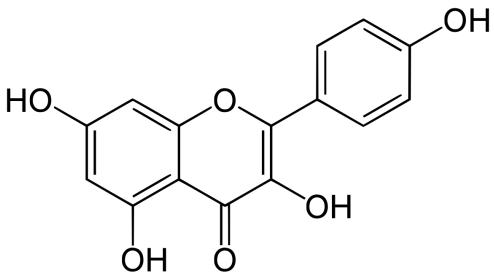


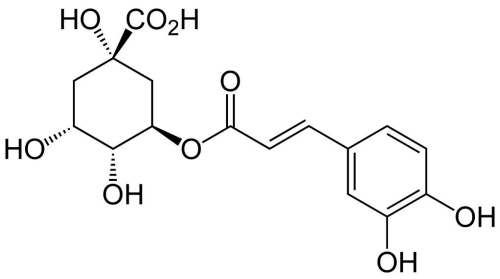
Vainillina



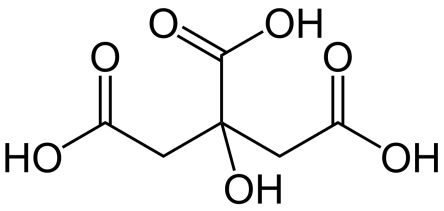
Kaempferol



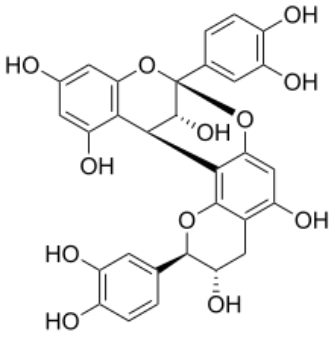
Ácido quínico



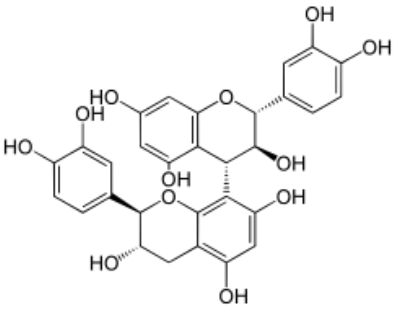
Ácido cítrico



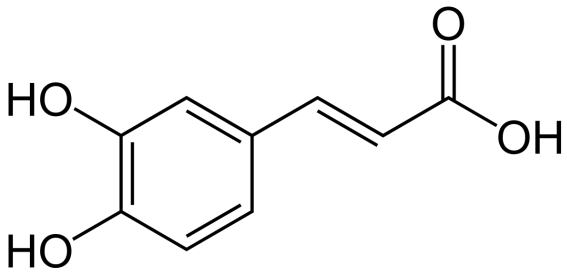
Procianidina A



Procianidina B3



Ácido cafeico



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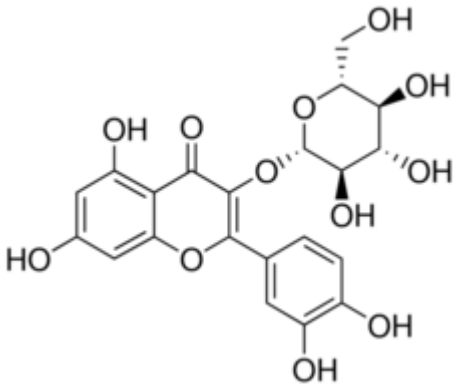
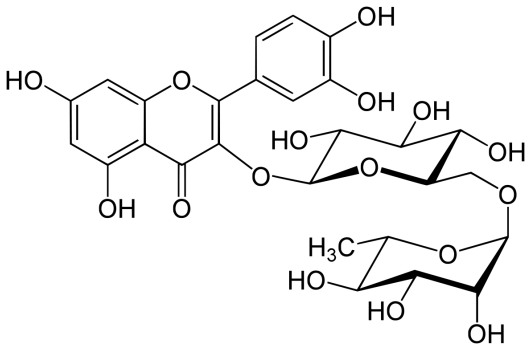
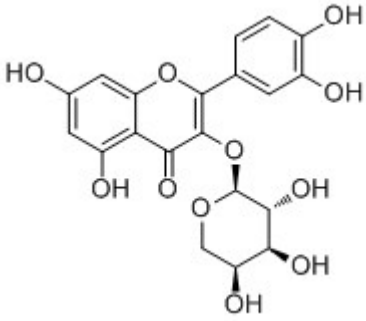


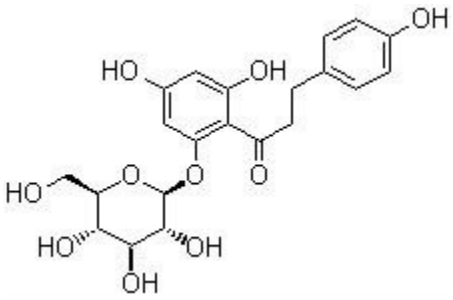
Quercetina-3- O- rutinósido



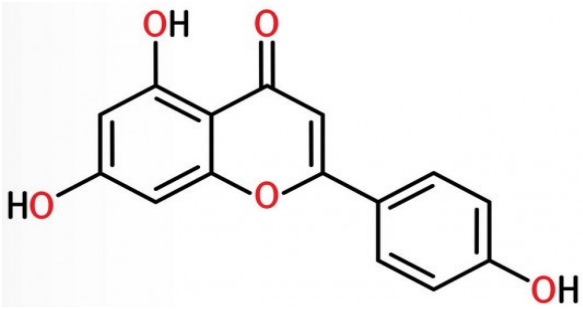
Quercetina 3- O- arabinósido



Floridzina



Apigenina



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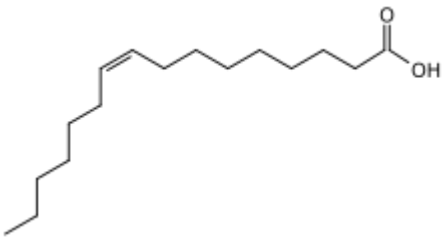

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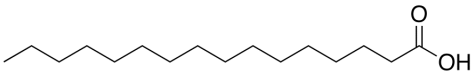

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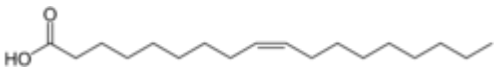

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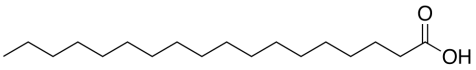

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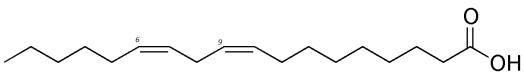
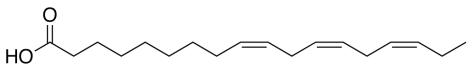
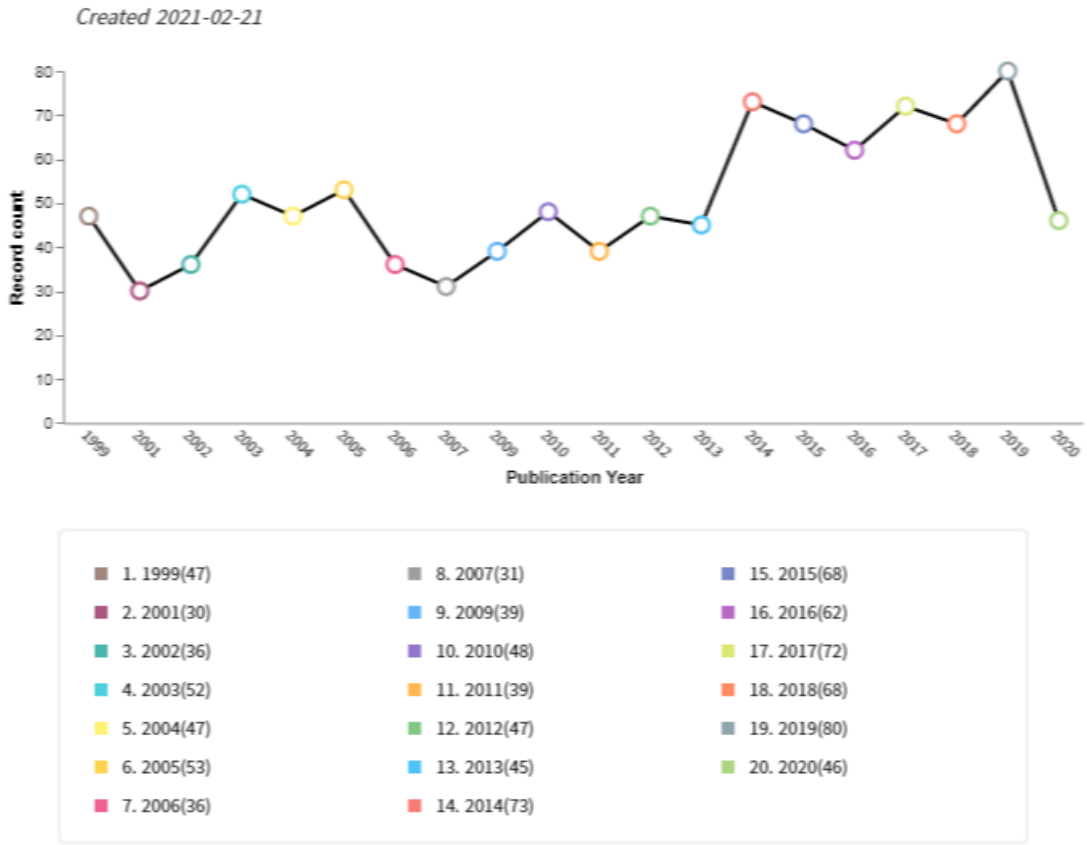


Ácido linolenico



III. SOLICITUDES DE PATENTES RELACIONADAS Y ARTÍCULOS

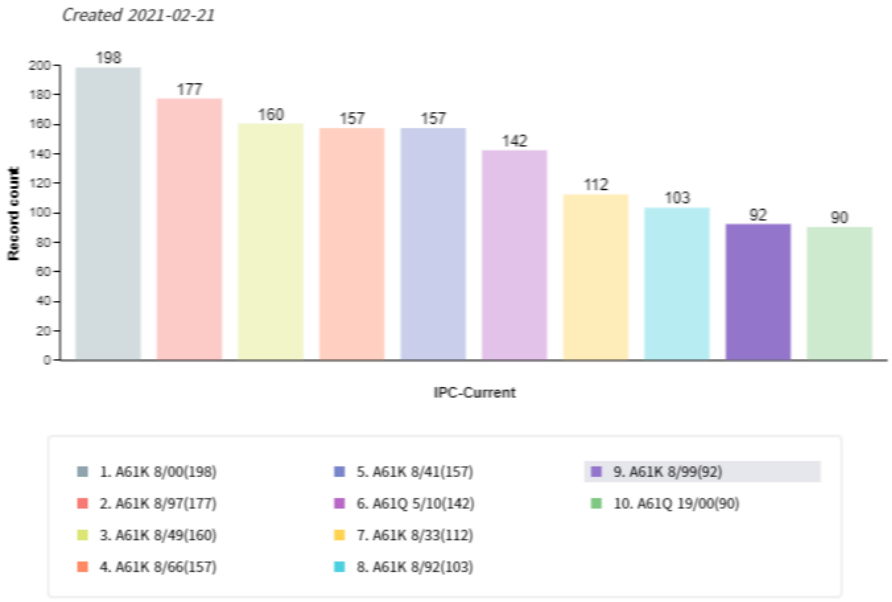
A. Publicaciones de patentes por año



Fuente: Clarivate analytics

Este gráfico muestra las solicitudes publicadas a lo largo de los años, siendo la mayor cantidad en 2019, 2014 y 2017 con 80, 73 y 72 publicaciones respectivamente, además hasta el año 2020, la cantidad de publicaciones relacionadas con ***Persea americana*** fue de 46. Se observa también que existe una fluctuación de publicaciones en todos los años, sin embargo dichas cantidades son superiores a 29 solicitudes en cada año.

B. Clasificación Internacional de Patentes



Fuente: Clarivate analytics

Las clasificaciones que se observan en la mayor cantidad de solicitudes corresponden a A61 K y A61Q

A61K 8/00 Cosméticos o preparaciones similares para el aseo

A61K 8/97 •••a partir de algas, hongos, líquenes o plantas; a partir de sus derivados

A61K 8/49 •••que contienen compuestos heterocíclicos

A61K 8/66 ••••Enzimas

A61K 8/41 ••••Aminas

A61K 8/33 •••que contienen oxígeno

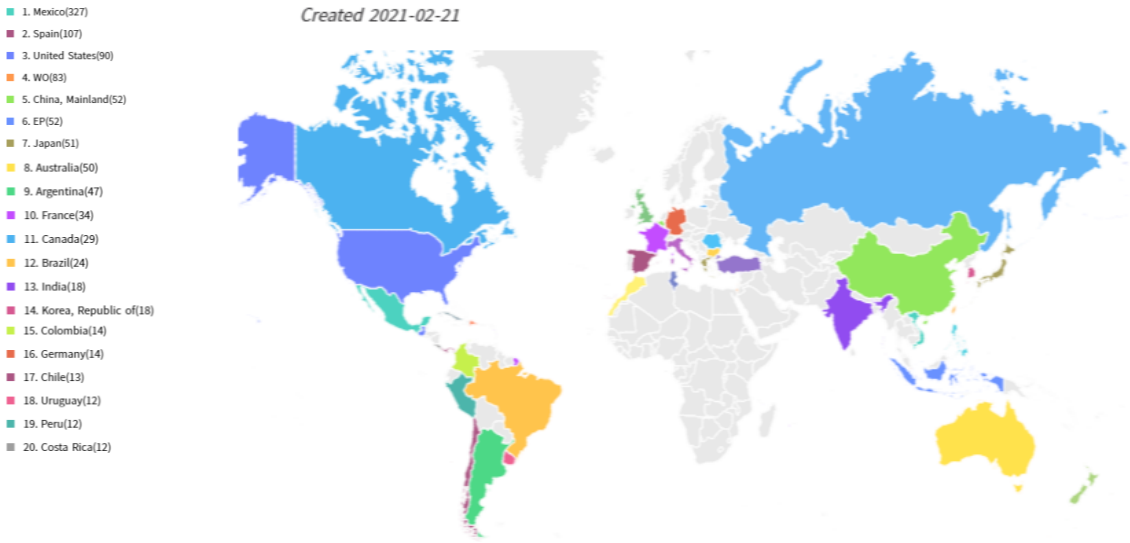
A61K 8/92 ••Aceites, grasas o ceras; sus derivados, p. ej. productos de hidrogenación

A61K 8/99 •••a partir de otros microorganismos distintos de algas u hongos, p. ej. protozoos o bacterias

A61Q 5/10 •Preparaciones para teñir de manera permanente el cabello o el vello

A61Q 19/00 Preparaciones para el cuidado de la piel

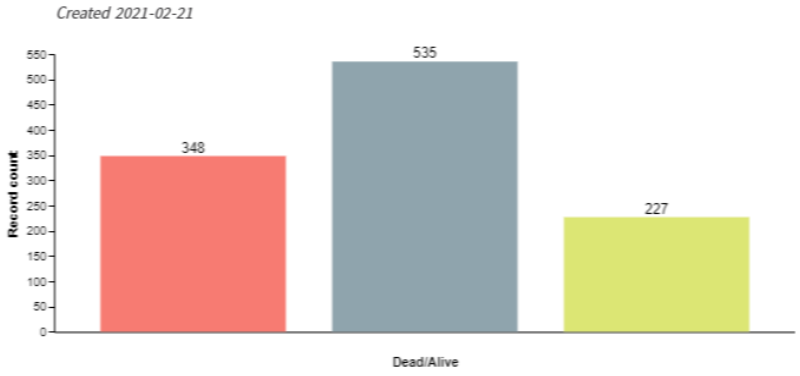
C. Los mayores solicitantes de invenciones por regiones



Fuente: Clarivate analytics

La mayor cantidad de solicitudes presentadas se encuentran en: México con 327, España con 107 solicitudes, Estados Unidos con 90 solicitudes, por vía PCT son 83, China y la Unión Europea con 52 solicitudes cada una, Japón con 51 solicitudes y Australia con 50 solicitudes. Entre los países sudamericanos, Argentina cuenta con 47, Brasil con 24, Colombia con 14, Chile con 12, Uruguay y Perú con 12 solicitudes cada una, entre otras.

D. Estado de las solicitudes



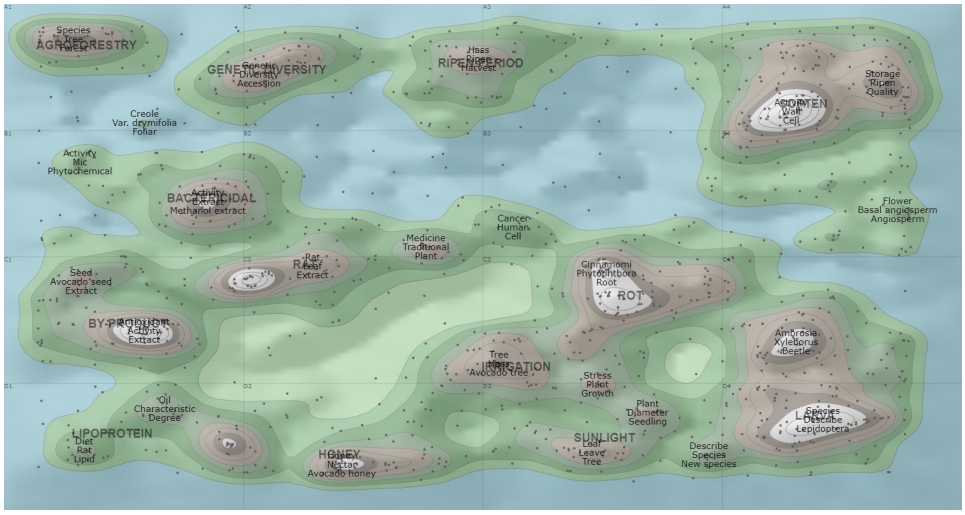
Fuente: Clarivate analytics

Como se observa en el gráfico, 535 solicitudes se encuentran denegadas por algún paso administrativo incompleto, fallido o caduco en trámite, 348 solicitudes se encuentran en trámite u otorgadas y 227 solicitudes indeterminadas.

E. Tendencias de uso

Fuente: Clarivate analytics

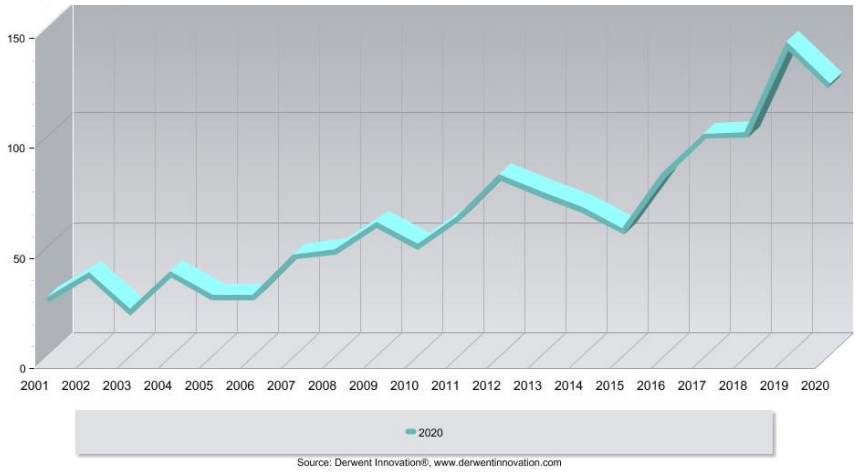
En el siguiente mapa cartográfico sobre ***Persea americana,*** algunas islas contienen información en los campos agrícola, alimentario y farmacéutico, dentro de los cuales destacan los procedimientos de obtención de polvos, aceite, extractos como tinturas e ingredientes activos que se encuentran relacionadas entre ellas. En otras islas se muestran las áreas relacionadas donde se localiza las patentes, el petróleo, fibra, composiciones, entre otras.



Fuente: Clarivate analytics

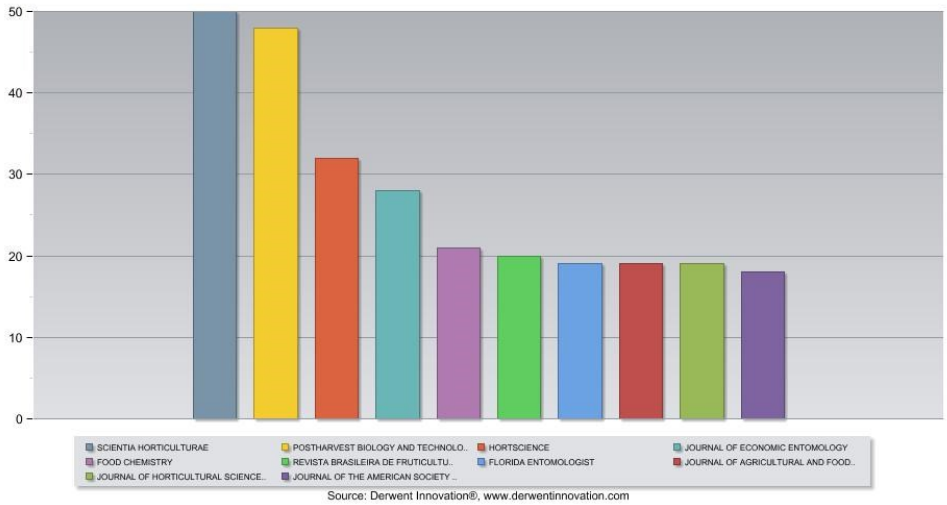
En el siguiente mapa cartográfico sobre ***Persea americana,*** algunas islas describen actividades en la investigación relacionadas a este recurso, por ejemplo, su uso en medicina tradicional, investigaciones botánicas, caracterización de derivados, diversidad genética, agroforestería, irrigación, bactericida así como otras actividades fitoquímicas.

F. Publicaciones de artículos de revista



El gráfico muestra el número de revistas publicadas a lo largo de los años, donde la mayor cantidad de artículos difundidos se encuentran entre el 2019 y 2020, además, no se observan cambios muy grandes en las investigaciones relacionadas a este recurso, siendo visible la tendencia al aumento de las mismas desde el año 2001.

G. Revistas con publicaciones relacionadas



El gráfico muestra las revistas que publican información relacionada con ***Persea americana***, donde las grandes cantidades de publicaciones, proceden de revistas como SCIENTIA HORTICULTURE, con 50 publicaciones; POSTHARVEST BIOLOGY AND TECHNOLOGY, con 48 publicaciones; HORTISCIENCE, con 32 publicaciones y JOURNAL OF ECONOMIC ENTOMOLOGY, con 28 publicaciones. Las siguientes revistas tienen menos cantidad de publicaciones, sin embargo, todas se registran al área agrícola.

IV. PUBLICACIONES CIENTÍFICAS

Journal of Ethnopharmacology
Available online 21 January 2021, 113870
In Press, Journal Pre-proof

EVALUATION OF POSSIBLE EFFECTS OF *PERSEA AMERICANA* SEEDS ON FEMALE REPRODUCTIVE HORMONAL AND TOXICITY PROFILE

Ifeoma C. Orabueze [a], Rahmotallah Babalola [a], Obioma Azuonwu [b], Ini-Ibehe Okoko [c], George Asare [d]

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https://doi.org/10.1016/j.jep.2021.113870

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Abstract

Ethnopharmacological relevance

The seed of Avocado (*Persea americana*, Lauraceae), non-edible part of the fruit is used as health product. It has been reported as traditional female contraceptive and sterilizer in Peru and some Asian countries and in Nigeria as cardio-protective agent. The present study focused on the effect of hydro-methanolic seed extract of *Persea americana* on female hormones and toxicity profile using animal models.

Materials and methods

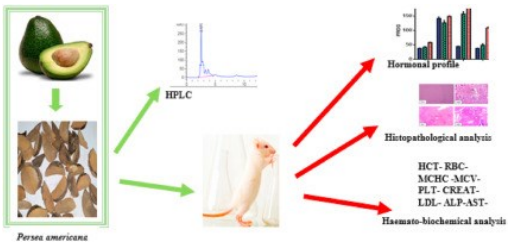
The serum follicle stimulating hormone (FSH) and progesterone (PROG) concentrations in mature non-pregnant female rats were assayed using hormonal kits. The toxicity profile was assessed using Lorke's acute toxicity model, haemato-biochemical evaluation and histopathological studies of reproductive related organs. Parameters were measured on day-30, 60 and 90. Presence of biomarker flavonoid compounds were confirmed using High Performance Liquid Chromatography.

Results

The extract at 20, 100 and 500 mg kg $^{-1}$ altered FSH and PROG hormone profile of the treated groups. The extract initially, dose-dependently decreased FSH level in day-30 (6.95, 3.97, 2.08 IU/L respectively) compared to untreated group before a significant increase was observed for day 60 and 90. Progesterone increased dose-dependently in the treated groups throughout the 90-day treatment duration. This may be Indicating cumulative effect on the hormone. No deleterious or toxicity effect was noticed.

Conclusions

The extract of *Persea americana* seed affects female hormone activity. This may find application in various hormonal management procedures, maternal and reproductive health and fertility control/help health facilities. However, it should be used with caution in women intending to conceive.



Fuente: https://www.sciencedirect.com/science/article/abs/pii/S0378874121000969

plants

Open Access Article

Fatty Acid Derivatives Isolated from the Oil of *Persea americana* (Avocado) Protects against Neomycin-Induced Hair Cell Damage

by SeonJu Park [1,†], Seo Yule Jeong [2,†], Youn Hee Nam [2], Jun Hyung Park [3], Isabel Rodriguez [2], Ji Heon Shim [2], Tamanna Yasmin [2], Hee Jae Kwak [3], Youngse Oh [3], Mira Oh [3], Kye Wan Lee [4], Jung Suk Lee [4], Do Hoon Kim [4], Yu Hwa Park [4], In Seok Moon [5], Se-Young Choung [6], Kwang Won Jeong [7], Bin Na Hong [2], Seung Hyun Kim [3,*] and Tong Ho Kang [2,*]

[1] Chuncheon Center, Korea Basic Science Institute (KBSI), Chuncheon 24341, Korea
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(This article belongs to the Special Issue Isolation and Analysis of Characteristic Compounds from Herbal and Plant Extracts)

Abstract

Avocado oil is beneficial to human health and has been reported to have beneficial effects on sensorineural hearing loss (SNHL). However, the compounds in avocado oil that affect SNHL have not been identified. In this study, we identified 20 compounds from avocado oil, including two new and 18 known fatty acid derivatives, using extensive spectroscopic analysis. The efficacy of the isolated compounds for improving SNHL was investigated in an ototoxic zebrafish model. The two new compounds, namely (2*R*,4*R*,6*Z*)-1,2,4-trihydroxynonadec-6-ene and (2*R*,4*R*)-1,2,4-trihydroxyheptadecadi-14,16-ene (compounds 1 and 2), as well as compounds 7, 9, 14, 17 and 19 showed significant improvement in damaged hair cells in toxic zebrafish. These results led to the conclusion that compounds from avocado oil as well as oil itself have a regenerative effect on damaged otic hair cells in ototoxic zebrafish. View Full-Text

Keywords: avocado oil; fatty acids; hearing loss; zebrafish; hair cell

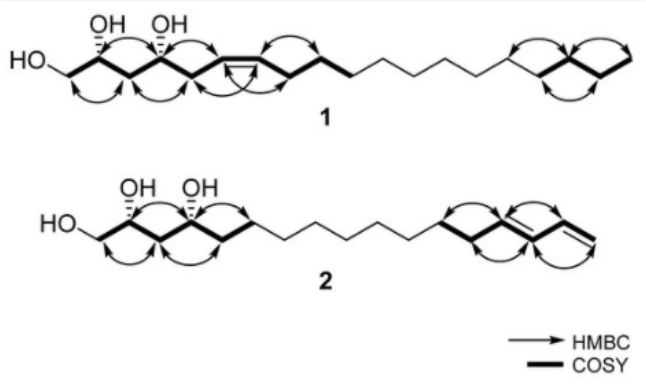

Figure 1

Fuente: https://www.mdpi.com/2223-7747/10/1/171

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Hepato-Preventive Effects of Hydroethanolic Leaves Extract of *Persea americana* Mill. (Lauraceae) "Avocado" against Antouka Super®Induced Damage in Male Japanese Quail (*Coturnix coturnix* Japonica)

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DOI: 10.4236/ojvm.2021.111003 **PDF** **HTML** **XML** **11** Downloads **42** Views

Abstract

The present study was undertaken to evaluate the protective effects of Hydroethanolic leaves extract of *Persea americana* (HEPA) against Antouka Super?(AS) induced hepatotoxicity in male Japanese quail. In total, 40 immature male Japanese quails aged 28 days were used and divided equally into 5 groups. The groups were designed as the control group (received only a 10 ml/kg of distilled water) and the AS group (75 mg/kg b.w). Other three groups received AS (75 mg of AS/kg b.w) plus HEPA (50, 100, and 200 mg/kg b.w/day respectively) by the oral route. After 60 days of the experiment, the crushed liver was performed to obtain homogenate. The protective effects of HEPA on the biochemical parameters, oxidative stress biomarkers and histology changes in the liver were evaluated. The results indicated that AS treatment caused significant alterations in the clinical signs and behavior. It induces the increase in the content of Urea, Creatinine, Protein, AST and ALT in liver tissues and serum. The activities of enzymatic oxidative stress markers such as Superoxide Dismutase (SOD); Catalase (CAT) and Total Peroxidase (POD) also showed significant perturbations in AS-treated quails. Histopathological examination of the liver of AS-treated quails revealed liver lesions characterized by moderate to severe degenerative changes showing a number of hepatocytes undergo fatty changes, focal aggregation of the lymphocytes, multiple necrotic changes and inflammatory infiltrate. The administration of HEPA however, markedly ameliorated the toxicity of AS by protecting the levels of aforesaid biomarkers to near normal levels. These results suggested that HEPA due to its phytochemical constituents with antioxidant properties possesses significant effects against AS-induced toxicity. However, these effects were more pronounced at a dose of 200 mg/kg bw.

Keywords

Antouka Super® (AS), Hepatoprotective, Toxicity, Hydroethanolic Leaves Extract, Persea americana, Japanese Quail

Fuente: https://www.scirp.org/journal/paperinformation.aspx?paperid=106888

processes MDPI

Open Access Article

Effects of Temperature and Extraction Time on Avocado Flesh (*Persea americana*) Total Phenolic Yields Using Subcritical Water Extraction

by Walid I. Mazyan [1], Ellen O'Connor [2], Elia Martin [3], Anja Vogt [3], Edward Charter [2] and Ali Ahmadi [1,*]

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(This article belongs to the Special Issue Advances in Supercritical Fluid Extraction)

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Abstract

This paper investigates the optimum extraction temperature for enhanced total phenolic yields extracted from avocado fruit flesh (*Persea americana*) using subcritical water extraction, as well as the impact of fruit ripeness on phenol extraction efficiency. Additionally, extraction yield against extraction time was investigated for time intervals of 10 min over an overall extraction time of 30 min. The subcritical water conditions studied were 18 bar, 87 mL/min, and temperatures of 105 °C, 120 °C, and 140 °C. The total phenolic compounds content was compared for week one avocado flesh and ripe (week four) avocado flesh, with a four-week ripening period between the two samples. The results show that extracting with subcritical water at 105 °C provides the highest phenolic compounds yields of 0.11% and 0.26% by dried mass for week one and ripe fruit (week four), respectively. The experimental results also indicate that the implementation of lower extraction temperatures on week four avocado (i.e., following the selection of week one avocados and allowing them to ripen over a period of one month) enhances the phenolic compounds extraction yields by more than four times relative to the first week's sample extract, specifically during the first 20 min of extraction.
View Full-Text

Keywords: avocado flesh; *Persea americana*; subcritical water extraction; total phenolics content; optimized extraction temperature; ripe avocado

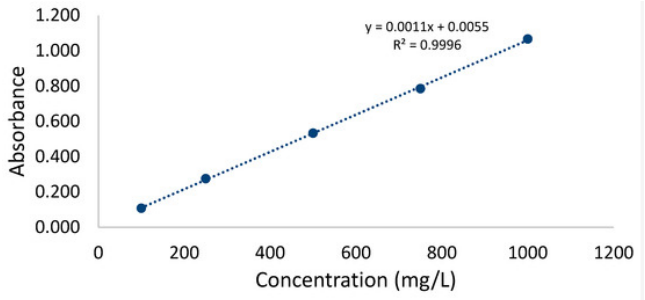

Figure 1

Fuente: https://www.mdpi.com/2227-9717/9/1/159

EJFOOD
European Journal of Agriculture & Food Sciences
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Comparative Analysis of the Physicochemical Characteristics, Phytochemical Components and Fatty Acid Profile of Avocado Pear (Persea Americana L) Pulp and Seed Oil

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Issue

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Abstract

The physiochemical properties, phytochemical content, and fatty acid profile of Avocado pear (Persea americana) pulp and seeds oils were investigated. The pulp oil was extracted using the hot water flotation method while the seed oil was extracted by the soxhlet extraction method. Extracted oils were analyzed. The pulp oil was emerald green while the seed oil was brownish red in colour. Pulp oil has significantly higher blue (27B) on Lovibond scale. The oil yield, smoke point and flash point of the pulp oil were 28.26%, 171.00 °C and 201.67 °C respectively. Which were higher than 13.64%, 100.00 and 130.66 °C seen in the seed oil. Iodine value, FFA, peroxide value and saponification value of the pulp oil were respectively 50.70 g/100 g, 0.53%, 1.10 mEq/kg and 218.66 mgKOH/g while those of the seed oil were 40.68 g/100 g, 2.85%, 2.16 mEq/kg and 198.31 mgKOH/g respectively. Saponins, alkaloid, phenol, tannin, and oxalate content of the seed oil were significantly higher than those of the pulp oil, with respective values of 12.23, 1.06, 5.06, 3.05 and 10.07 mg/100 g. Flavonoid was however higher in the pulp oil, at 6.20 mg/100 g. avocado pulp oil contained 43.23% oleic acid, 19.78% linoleic acid. It contains only 35.31% total saturated fatty acids. The seed oil was shown to contain 55% palmitic acid, as the predominant saturated fatty acid and contained a total of 69% saturated fatty acids. It is recommended that avocado seed oil be refined before use for culinary purposes.

Keywords: Avocado Pear Oil, Physical, Phytochemical, Fatty Acid Profile

Fuente: https://www.ejfood.org/index.php/ejfood/article/view/212

Antihyperglycemic and Antihyperlipidemic Effect of Persea americana in High Fat Diet and Low Dose Streptozotocin Induced T2DM Male Albino Wistar Rats

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Research

Keywords: Antihyperglycemic effect, T2DM, Persea americana, High fat diet, STZ, hyperglycemia, dyslipidemia, Albino Wistar rats

DOI: https://doi.org/10.21203/rs.3.rs-198182/v1

Abstract

Background: Type II diabetes is a major health problem worldwide, and is increasing in an alarming rate globally and in Ethiopia due to change in dietary habits and sedentary life style. Even though there is no effective cure for diabetes, early control of blood glucose significantly reduces the risk of diabetic complications. Different types of ingredients present in medicinal plants that act on a variety of targets by various modes and mechanisms are used to treat diabetes with minimum cost and side effect. Therefore, the objective of the present study was to investigate the antidiabetic effect of *Persea americana* mill fruit juice in high fat diet (HFD) and low dose Streptozotocin (STZ) induced type 2 diabetic (T2DM) male albino Wistar rats.

Methods: Thirty six male albino Wistar rats weighing form 150-200g were divided in into six different groups: group I (normal control); Group II (diabetic control); Group III (metformin control) and Group IV – Group VI (treatment groups). Group I was fed on standard pellet and group II – group VI were fed on HFD for 4 weeks to induce pre-diabetes and insulin resistance followed by low dose STZ injection to induce T2DM. The treatment groups (group IV, V and VI) were given 632 mg/Kg, 1264 mg/Kg and 1896 mg/Kg/day of *Persea americana* fruit juice for six weeks, respectively to compare with normal, diabetic and 7mg/Kg metformin treated groups. After forty-five days of treatment, the rats were fasted overnight (12 to 14 hours), anaesthetized and blood sample was collected by cardiac puncture for biochemical tests (fasting blood glucose (FBG), lipid profile, total protein and creatinine). The results were analyzed using SPSS version 22.0. One way ANOVA followed by Post hoc Tukey's multiple comparisons were done to compare the mean differences among the experimental groups, and p-values < 0.05 were considered statistically significant.

Results: In high dose (1896 mg/Kg/day) *Persea americana mill* fruit juice treated group, food consumption, body weight, FBG, and LDL-C were significantly reduced and HDL-C was significantly increased ($p < 0.005$) compared with diabetic control group. Moderate dose (1264mg/Kg/day) treated group showed a decrease in FBG on 6^{th} week and improve HDL-C levels. Treating the rats with *Persea americana* fruit juice changed TG, total protein and creatinine levels although not significant. Oral antidiabetes drug (metformin) significantly reduced pellet consumption, body weight, FBG and lipid profile.

Conclusion: Overall, *Persea americana mill* fruit juice showed antihyperglycemic and antihyperlipidemic effect particularly through reduction of fasting blood glucose, LDL-C and increasing HDL-C in T2DM induced rats, thus it can be helpful in reducing the risk of diabetic complications.

Fuente: https://assets.researchsquare.com/files/rs-198182/v1/e78b13a4-e270-40cf-9994-093d2a93ad7f.pdf

Journal of
Food Biochemistry

FULL ARTICLE

Avocado oil (*Persea americana*) protects SH-SY5Y cells against cytotoxicity triggered by cortisol by the modulation of BDNF, oxidative stress, and apoptosis molecules

Jéssica Rosso Motta, Ivo Emilio da Cruz Jung, Verônica Farina Azzolin, Cibele Ferreira Teixeira, Luiza Elizabete Braun, Daniel Augusto De Oliveira Nerys, Marco Aurélio Echart Motano ... See all authors

First published: 22 January 2021 | https://doi.org/10.1111/jfbc.13596

Jéssica Rosso Motta and Ivo Emilio da Cruz Jung are the authors contributed equally to the present study

Abstract

Chronic psycho-environmental stress can induce neurological dysfunction due to an increase in cortisol levels. It is possible that some food supplements could attenuate its negative impact, such as avocado oil (AO), which is rich in fatty acids with beneficial effects on the brain. This hypothesis was tested by an in vitro model using undifferentiated neuroblastoma cells (SH-SY5Y) exposed to hydrocortisone (HC), an active cortisol molecule with and without AO-supplementation. Cortisol can induce oxidative stress, apoptosis events, and a lowering effect on brain-derived neurotrophic factor (BDNF), a neurogenic molecule. As AO protective effects on HC-exposed cells could involve these routes, some markers of these routes were compared among neuroblastoma cultures. In the first assay, the range concentrations of HC exposure that trigger cell mortality and range AO-concentrations that could revert the HC effect. AO at all concentrations tested (2–30 μg/ml) did not present a cytotoxic effect on SH-SY5Y cells, whereas HC at 0.3–10 ng/ml had a dose-dependent cytotoxic effect on these cells. From these results, HC at 10 ng/ml and AO at 5 μg/ml were chosen for mechanistic analysis. AO was able to decrease the oxidative molecules; however, both AO- and HC-induced differential and varied gene expression modulation of these enzymes. AO partially reverted the protein and gene expression of apoptotic markers that were higher in HC-exposed cells. AO also increases the BDNF levels, which are lower HC-exposed cultures. The results indicate that AO could be a beneficial supplement in situations where cortisol levels are elevated, including chronic psycho-environmental stress.

Practical applications

Psychological chronic stress that induces high cortisol exposure has been linked to premature aging and decreased healthy life expectancy. Neurobiological models involving cortisol have suggested a neurotoxic effect of this molecule, increasing the risk of psychiatric and other CNTDs. This effect can have a high impact mainly in infants and elderly people. In child abuse situations, chronic cortisol exposure could induce extensive apoptosis events, causing impairment in synaptogenesis. In both age groups, chronic cortisol exposure increased the risk of psychiatric conditions, especially anxiety and major depression. However, it is possible that the negative effects associated with chronic cortisol exposure could be attenuated by some food supplements. This is the case for molecules acquired through diet, such as polyunsaturated fatty acids (PUFAs), including omega-3. As inadequate omega-3 levels in the brain can increase the risk factor for neuropsychiatric disorders, it is possible to infer that some from food supplements, such as avocado oil, could attenuate the neurotoxic effects of chronic cortisol exposure. This hypothesis was tested using an exploratory in vitro protocol, and the results suggested that avocado oil could be used as a cytoprotective food supplement by decreasing the oxidative stress and apoptotic events induced by cortisol.

Fuente: https://onlinelibrary.wiley.com/doi/abs/10.1111/jfbc.13596

Khazanah: Jurnal Mahasiswa

Utilization of Basil Leaves (Ocimum Basilicum) and Avocado Leaves (Persea Americana Mill) as Anti-Inflammatory Gel and Antibiotics in Myasis Disease

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DOI : 10.20885/khazanah.vol12.iss2.art32

Abstract

Production rate of domectic cattle begin to decline in each year, especially from range 2016 to 2019. Many factors influence, such as switching local breeders to other professions, and disease. One of the disease that quite dangerous called *Myasis*. Caused by *C. Bezziana* fly larvae, this disease causing excruciating and extended pain, resulting in decreased livestock performance. The decline in livestock performance has resulted in a decrease in livestock meat production, while the demand for meat in the community always increases every year. Based on these problems, an innovative idea is offered that is able to control and cure myasis in livestock by utilizing basil (*Ocimum basilicum*) and avocado leaves (*Persea americana Mill*) which have flavonoid levels as anti-inflammatory due to *Myasis* and antibiotics. This study aims to overcome the decline in livestock yields caused by livestock *Myasis* which results in the quality of the meat to be produced. The research method used was literature study and gel making. The process of making anti-inflammatory and antibiotic gel is quite simple, which is done by extracting the ingredients using water and air distillation, then carried out by the process of forming a gel with the addition of surfactants to the ingredients so that each material mixed can remain stable in the gel. The resulting gel making was continued with testing for viscosity, stability, appearance, homogeneity, and pH determination. The result of making anti-inflammatory and antibiotic gel is expected to increase the performance of livestock so that the demand for meat in the community can be fulfilled.

Keywords: antibiotics, gels, inflammation, livestock performance, myasis.

Refbacks

- There are currently no refbacks.

Fuente: https://journal.uii.ac.id/khazanah/article/view/17594

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ISSN: 2774-6585

EXPERIMENT BASED WORK SHEET DEVELOPMENT ON FACE SERUM BASED ON MILK KEFIR AND ALPUKATE FRUIT EXTRACT (PERSEA AMERICANA)

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Prodi Pendidikan Kimia, UIN Sunan Gunung Djati Bandung

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Keywords: cosmetic, experimental worksheets, serum

ABSTRACT

This study aims to describe the appearance of the worksheet (LK) and analysis of the results of the validation test worksheet based on experiments on the manufacture of facial serum made from kefir whey and avocado extract. Worksheets were made using the design based research (DBR) method, by adapting the ADDIE Instrument model used, namely validation test sheets, worksheet grids, worksheets, and validation questionnaires filled out by the validator. The preparation of this Lk includes the stages of concept analysis in advanced natural substance chemistry courses, analysis of the research literature on facial serum making, analysis of steps in LK. So as to produce a product in the form of LK. The results of the validation test were processed using the correlation technique (r) which compared rcount with criticality. From the research, the mean count was 0.77 which was categorized as quite high. Thus it can be said that the worksheet is valid and is used as a medium for learning the chemistry of natural materials in cosmeseutical concepts.

Fuente: https://conferences.uinsgd.ac.id/index.php/gdcs/article/view/72

Physical properties and proximate composition of Thompson red avocado fruit

Chin Xuan Tan, Seok Shin Tan, Hasanah Mohd Ghazali, Seok Tyug Tan
British Food Journal
ISSN: 0007-070X
Publication date: 5 February 2021

Abstract

Purpose

Thompson red avocado is a bright red-coloured fruit when ripe. As the global market for avocado fruit is increasing, this unique avocado variety could potentially be the savory fruit for consumers. The study aimed to evaluate the physicochemical properties of different parts of Thomson red avocado fruit.

Design/methodology/approach

Physical parameters were measured using a calibrated digital balance and a vernier caliper. The methods of the Association of Official Analytical Chemists (AOAC) and a calibrated digital pH meter were used to measure the proximate composition and pH values of different fruit parts. Meanwhile, the total soluble solids and titratable acidity were determined using titration methods.

Findings

Thompson red avocado is a medium-sized fruit with an average mass, length and diameter of 216.92 g, 9.50 and 7.20 cm, respectively. The major part of the fruit is pulp (56.01%), followed by seed (33.04%) and peel (10.94%). Each of these fruit parts was further investigated for their proximate composition, pH, titratable acidity and total soluble solids. All the fruit parts were found to be low in protein (<1%) and titratable acidity (<0.42%), but high in moisture content (>60%). The pH of these fruit parts was in the range of 5.04–5.59. Compared to the peel and seed, the pulp has the highest crude fat (20.79%), but the lowest ash content (1.47%), total carbohydrates (3.39%) and total soluble solids (7.83 °Brix).

Originality/value

The physical and chemical properties of the commercial avocado varieties such as Fortuna, Collinson, Hass and Barker are well-documented in the literature. Unlike typical avocado fruits, which change from green into dark black, dark green or deep purplish colour when ripe, Thompson red variety changes into red colour when ripe. As the global market for avocado fruit is increasing, the unique, bright-red-coloured Thompson red avocado could potentially be the savoury fruit for consumers. Previous studies reported the nutritional composition of avocado fruit is affected by variety and geographical locations, but the data on the nutritional profile of Thompson red avocado fruit are scarce. Therefore, this study was carried out to determine the physical properties and nutrient contents of Thompson red avocado fruit.

Fuente: https://www.emerald.com/insight/content/doi/10.1108/BFJ-09-2020-0803/full/html

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Evidence-Based Complementary and Alternative Medicine

Research Article | Open Access
Volume 2020 | Article ID 8833828 | https://doi.org/10.1155/2020/8833828

Show citation

Hypotensive and Antihypertensive Properties and Safety for Use of *Annona muricata* and *Persea americana* and Their Combination Products

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Academic Editor: Benoit Banga N'guessan

Received	Revised	Accepted	Published
15 Aug 2020	22 Oct 2020	23 Nov 2020	10 Dec 2020

Abstract

Introduction. In the management of hypertension (a cardiovascular disease and the leading metabolic risk factor in noncommunicable diseases) with herbal medicines, efficacy and safety are of uttermost concern. This study sought to establish hypotensive, antihypertensive, drug interaction, and safety for use of the aqueous leaf extracts of *Annona muricata* (AME), *Persea americana* (PAE), or their combination products (CAPE). *Methodology.* Systolic and diastolic blood pressure (SBP and DBP), mean arterial blood pressure (MAP), and heart rate (HR) were measured in normotensive Sprague-Dawley rats treated with 50–150 mg/kg of AME, PAE, or CAPE to establish a hypotensive effect. "Combination index" was calculated to establish interaction between AME and PAE. The antihypertensive effect of CAPE was established by measuring SBP, DBP, MAP, and HR in ethanol-sucrose- and epinephrine-induced hypertension. Full blood count, liver and kidney function tests, and urinalysis were determined in ethanol/sucrose-induced hypertension to establish safety for use. *Results.* AME, PAE, and CAPE significantly ($p \leq 0.001$) decreased BP in both normotensive and hypertensive animals. Effects of CAPE 1, CAPE 2, and CAPE 3 were synergistic (combination indices of 0.65 ± 0.07, 0.76 ± 0.09, and 0.87 ± 0.07, respectively). There was a significant decrease ($p \leq 0.01 - 0.001$) in SBP and MAP with 100 mg/kg CAPE 1 and 75 mg/kg CAPE 2 treatment in hypertension as well as with nifedipine ($p \leq 0.001$) treatment. Epinephrine-induced hypertension in anesthetized cats was significantly and dose-dependently inhibited ($p < 0.05 - 0.001$) by 25–100 mg/ml CAPE 1 and 37.5–75 mg/ml CAPE 2. CAPE administration had no deleterious effect ($p > 0.05$) on full blood count, liver and kidney function, and urine composition in hypertensive rats. *Conclusion.* The aqueous leaf extracts of *Annona muricata*, *Persea americana*, and their combination products possess antihypertensive properties, with combination products showing synergism and safety with use.

Fuente: https://www.hindawi.com/journals/ecam/2020/8833828/

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Biochemistry Research International

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Volume 2020 | Article ID 8884300 | https://doi.org/10.1155/2020/8884300

Show citation

Antibacterial, Antifungal, and Antidiabetic Effects of Leaf Extracts from *Persea americana* Mill. (Lauraceae)

Mercy Makopa,[1] Benjamin Mangiza,[1] Benjamin Banda,[1] Winnie Mozirandi,[1] Molly Mombeshora,[1] and **Stanley Mukanganyama**[1]

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Academic Editor: Z. Beyir Huyut

Received	Revised	Accepted	Published
13 Jul 2020	29 Oct 2020	30 Oct 2020	11 Nov 2020

Abstract

Fruits and leaves of *Persia americana* are used in traditional medical practices. This study was carried out to determine the antibacterial, antifungal, and antidiabetic effects of the leaf extracts from *P. americana*. The antibacterial activities of the leaf extracts were evaluated against *Klebsiella pneumoniae* and *Staphylococcus epidermidis* while antifungal activities were determined against *Candida albicans* and *Candida tropicalis*. The antidiabetic potential of the extracts was determined against mammalian α-glucosidase in vitro. The broth microdilution method was used to investigate the antibacterial and antifungal susceptibility of the microbial strains towards the leaf extracts. *S. epidermidis* was the most susceptible microbe out of the tested microorganisms. The acetone extract was the most potent extract against *S. epidermidis* with a minimum inhibitory concentration (MIC) of 50 μg/mL. At 100 μg/mL, the ethanol:water extract 18% of *K. pneumoniae* cells remained viable. Cell viability after exposure to the dichloromethane (DCM) and methanol extracts was 28% against *C. albicans* and 8% against *C. tropicalis*, respectively. The DCM:methanol and acetone extracts caused membrane damage in *S. epidermidis* exhibited by protein leakage. Only the acetone extract effected nucleic acid leakage. Screening of extracts' potential to inhibit the activity of α-glucosidase was carried out spectrophotometrically following the production of p-nitrophenol from p-nitrophenol-glucopyranoside (substrate) at a wavelength of 405 nm. Out of all the tested extracts, the methanolic extract showed the best inhibitory activity on α-glucosidase enzyme in a time-dependent and dose-dependent manner. $\mathbf{K}_i$ and $\mathbf{K}_{inact}$ values were found to be 1.4 mg/mL and 2.4 U/min, respectively, after incubation for 1 hour. It was concluded that the leaf extracts of *P. americana* contain phytochemicals with antibacterial, antifungal, and α-glucosidase inhibitory effects. Further studies are required for the identification of the active compounds in the leaf extracts responsible for these observed effects.

Fuente: https://www.hindawi.com/journals/bri/2020/8884300/

Progress in Chemical and Biochemical Research

Progress in Chemical and Biochemical Research 2020, 3(1), 39-45

Progress in Chemical and Biochemical Research

Journal homepage: www.pcbiochemres.com

Physico-chemical characterization of Avocado (Persea americana Mill.) Oil from Tree Indonesian Avocado Cultivars

Document Type : Original Research Article

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10.33945/SAMI/PCBR.2020.1.5

Abstract
The physicochemical characterization of n-hexane extracted oil of avocado (Persea americana) seed was carried out according to American Organization of Analytical Chemists (AOAC)/IUPAC standard methods. The result of the analysis showed that the oil sample contains an acid value of 1.542 mg/g, iodine value 127.40 g/100g, saponification value 196.35 mg/g and peroxide value 4.80mg/g, as well as specific gravity (0.8627), flashpoint (288oC) and relative viscosity (24.69 Cst.). This indicates that the oil can be used industrially for various purposes, including food processing, cosmetics etc

Graphical Abstract

Keywords
Persea Americana Oil yield Physicochemical properties

Main Subjects
Extraction Organic Chemistry Other Chemistry fields Physical Chemistry

Fuente: http://www.pcbiochemres.com/article_101500_4f51912438fc7b6edef95e201675981b.pdf

Journal of Functional Foods
Volume 64, January 2020, 103658

Lipid-rich extract from Mexican avocado (*Persea americana* var. drymifolia) induces apoptosis and modulates the inflammatory response in Caco-2 human colon cancer cells

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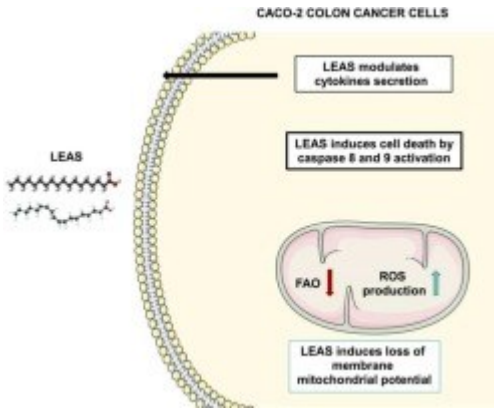
Abstract

Colorectal cancer (CRC) is the third most common type of cancer worldwide. Chemotherapy used in CRC patients has severe side effects. As an alternative, the search to identify natural compounds increases the opportunity to select therapeutics. In this work, the cytotoxic effect of a lipid extract (LEAS) from Mexican native avocado seed (*Persea americana* var. drymifolia) on colon cancer cells Caco-2 was determined. LEAS was cytotoxic towards Caco-2 cells (IC_{50} = 28 μg/ml), inducing apoptosis through the activation of caspases 8 and 9. Also, LEAS induced loss of membrane mitochondrial potential, inhibited fatty acid oxidation and increased the superoxide production and mitochondrial ROS. Furthermore, LEAS stimulated secretion of cytokines IL-6 (~500%), IL-8 (~400%) and IL-10 (~150%); whereas IL-1β secretion was inhibited (~50%). The results suggest that LEAS induces apoptosis on Caco-2 cells, indicating that avocado is a source of functional food products that can reduce the risk for development of cancer.



Fuente: https://www.sciencedirect.com/science/article/pii/S1756464619305821

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Amelioration of Hyperglycemia and Dyslipidemia in Alloxan-Induced Diabetic Rats Using *Citrulluslanatus* and *Persea Americana*

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Abstract

Dyslipidemia has been observed to play an integral role in the pathogenesis of micro and macrovascular complications in diabetes mellitus patients. The complications were assessed via atherogenic index (AI), Coronary risk index (CRI) and Cardiovascular risk index (CVRI).The study was to investigate the amelioration of hyperglycemia and dyslipidemia in alloxan induced rats using watermelon and avocado seeds. A total of Forty rats were divided into eight groups of 5 rats accordingly. Diabetes was induced with a single dose of alloxan (100mg/kg) body weight and serum glucose was taken 72h after induction of confirm diabetes. Amelioration of hyperglycemia and dyslipidemia started on the 6th and 9th day of the experiment respectively. The result obtained from the phytochemical analysis showed that the aqueous extract of *Citrulluslanatus* and *Persea Americana* gave positive reactions for Alkaliods, tannins, flavonoids and saponins. The data showed that Alloxan caused significant increase in Glucose, TC, TGs and LDL in the untreated diabetic rats. On the other hand HDL was significantly decreased. The result showed that *Citrulluslanatus* and *Persea Americana* seeds extracts significantly and progressively lowered the glucose level, TC, TGs and LDL dose dependently while significantly causing a dose-related elevation in HDL concentration. The result shows that atorvastatin and the seeds extracts are capable of reducing risk of AI, CRI and CVRI in diabetic rats.

Keywords: *Citrulluslanatus, Persea Americana*, Phytochemicals, Antidiabetic, Dyslipidemia and lipoproteins.

Citation | Ukpabi.C.F; Minaseidiema.R.; Anyaogu.E.J; Njoku.C.I; Esihe.T.E (2020). Amelioration of Hyperglycemia and Dyslipidemia in Alloxan-Induced Diabetic Rats Using *Citrulluslanatus* and *Persea Americana*. Journal of Life Sciences Research, 7(1): 1-7.
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Ethical: This study follows all ethical practices during writing.

Fuente: https://core.ac.uk/download/pdf/287161441.pdf

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Articles

Response surface modelling and optimisation of biodiesel production from Avocado plant (*Persea americana*) oil

Adewale George Adeniyi, Joshua O. Ighalo & Temitope Elizabeth Odetoye

Pages 243-250 | Published online: 25 Aug 2019

Download citation https://doi.org/10.1080/00194506.2019.1658546 Check for updates

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ABSTRACT

Avocado (*Persea americana*) is a plant native to tropical America but available in most other tropical areas of the world. In comparison to other fruits, the avocado contains a significant amount of oils which are highly rich in fatty acids. This study considered the response surface modelling and optimisation of the production of biodiesel from Avocado plant (*P. americana*) oil using methanol and NaOH catalyst. The basis of this work was a reliable dataset already presented in the open literature. An empirical correlation was developed from the available dataset to predict the biodiesel yield of Avocado plant (*P. americana*) oil based on known levels of the key process parameters and an ANOVA showed it to be significant. It was also observed that temperature, methanol–oil ratio and time are the more significant process factors. Numerical optimisation revealed that the optimal values of the factors are 61.63°C temperature, methanol–oil ratio of 7.21 mol/mol, catalyst loading of 1.15%w/w and process time of 88.61 min to give a predicted optimal biodiesel yield of 97.32%.

KEYWORDS: Biodiesel response surface methodology modelling optimisation Avocado

Fuente: https://www.tandfonline.com/doi/abs/10.1080/00194506.2019.1658546

Taylor & Francis Online

Articles

Nutritional status of 'Hass' and 'Fuerte' avocado (*Persea americana* Mill.) plants subjected to high soil moisture

Thiresia-Teresa Tzatzani, Nektarios Kavroulakis, Georgios Doupis, Georgios Psarras & Ioannis E. Papadakis

Pages 327-334 | Received 30 May 2019, Accepted 26 Aug 2019, Published online: 01 Nov 2019

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Abstract

In this study, the effect of increased soil moisture on the nutritional status of two key commercial avocado (*Persea americana* Mill.) cultivars, 'Fuerte' and 'Hass', was examined. The results revealed that prolonged exposure of plants to high soil water content conditions (waterlogging) reduced the total nutrient content (absolute quantity) of almost all of the nutrients in scion's tissues (leaves and stems) of both cultivars. The decrease of nutrient content in the 'Fuerte' leaves was more prominent/severe compared to the 'Hass' leaves, which could be the outcome of the reported higher sensitivity of the cultivar to soil waterlogged conditions in previous studies. Interestingly, the inability of 'Fuerte' avocado plants to withstand high soil moisture conditions was not reflected in the relative concentrations of most nutrients, both in leaves and stems. Indeed, significantly higher concentrations of P, K, B, Fe, and Zn were found in the leaves of 'Fuerte' waterlogged plants than in well-watered ones. This fact reveals that under marginal/stressful conditions, like waterlogging, nutrient concentration in tissues does not reflect potential negative effects on total nutrient uptake of avocado plants, obviously due to concentrated nutrient phenomena primarily created by the stress-dependent growth inhibition. Therefore, total nutrient content is proposed as a more representative indicator for assessing plant response to waterlogged conditions.

Keywords: Abiotic stress avocado mineral nutrition nutrient concentration waterlogging

Fuente: https://www.tandfonline.com/doi/abs/10.1080/01904167.2019.1683192

Record 171/1262: WOS:000610731800001

Source: PROCESSES | 9 (1): - JAN 2021

Title: Effects of Temperature and Extraction Time on Avocado Flesh (***Persea americana***) Total Phenolic Yields Using Subcritical Water Extraction

Author(s): Mazyan, WI | O'Connor, E | Martin, E | Vogt, A | Charter, E | Ahmadi, A

Date: JAN 2021

Author keywords: avocado flesh | ***Persea americana*** | subcritical water extraction | total phenolics content | optimized extraction temperature | ripe avocado

Keywords plus:

Publication year: 2021

Volume: 9

Abstract:

This paper investigates the optimum extraction temperature for enhanced total phenolic yields extracted from avocado fruit flesh (***Persea americana***) using subcritical water extraction, as well as the impact of fruit ripeness on phenol extraction efficiency. Additionally, extraction yield against extraction time was investigated for time intervals of 10 min over an overall extraction time of 30 min. The subcritical water conditions studied were 18 bar, 87 mL/min, and temperatures of 105 degrees C, 120 degrees C, and 140 degrees C. The total phenolic compounds content was compared for week one avocado flesh and ripe (week four) avocado flesh, with a four-week ripening period between the two samples. The results show that extracting with subcritical water at 105 degrees C provides the highest phenolic compounds yields of 0.11% and 0.26% by dried mass for week one and ripe fruit (week four), respectively. The experimental results also indicate that the implementation of lower extraction temperatures on week four avocado (i.e., following the selection of week one avocados and allowing them to ripen over a period of one month) enhances the phenolic compounds extraction yields by more than four times relative to the first week's sample extract, specifically during the first 20 min of extraction.

Record 459/1262: WOS:000565202100001

Source: ENVIRONMENTAL SCIENCE AND POLLUTION RESEARCH | 28 (2): 2260-2268 JAN 2021

Title: Avocado kernels, an industrial residue: a source of compounds with insecticidal activity against silverleaf whitefly

Author(s): de Carvalho, SS | Ribeiro, LD | Forim, MR | da Silva, MFDF | Bicalho, KU | Fernandes, JB | Vendramim, JD

Date: JAN 2021

Author keywords: Bemisia tabacibiotype B | Allelochemicals | Avocadofurans | Bioinsecticide | Industrial residue

Keywords plus: PERSEA-AMERICANA | BEMISIA-TABACI | PLANT-EXTRACTS | SEED EXTRACTS | IDENTIFICATION | ACETOGENINS | RESISTANCE | TOXICITY | PRODUCTS | CELLS

Publication year: 2021

Volume: 28

Abstract:

Fruit processing waste, such as kernels (endocarp + seed) of avocado [***Persea americana*** Mill. (Lauraceae)], could be used as raw material in the preparation of botanical insecticides. In light of this potential, this study assessed the insecticidal action of extracts and fractions from kernels of two avocado cultivars (Breda and Margarida) on ***Bemisia tabaci***(Gennadius) (Hemiptera: Aleyrodidae) biotype B, an important pest species in tropical conditions. Ethanolic and aqueous extracts prepared from kernels of ***P. americana***, regardless of the plant cultivar used, caused promising insecticidal activity to whitefly nymphs. Based on yield in crude extracts [10.32 and 9.85% (w/w), respectively, for cultivars Breda and Margarida], on the bioassay results with crude extracts and on the chemical profiles, the ethanolic extract of kernels of ***P. americana*** cv. Breda was chose for the continuation of the study. Thus, the ethanolic extract of kernels of cv. Breda (LC50 = 197.84 ppm and LC90 = 567.19 ppm) was selected and subjected to fractionation by the liquid-liquid partition technique. The hexane and dichloromethane fractions of this extract caused significant mortality of nymphs. The analysis using the ultraviolet (UV) and hydrogen nuclear magnetic resonance (H-1 NMR) showed the presence of long-chain aliphatic compounds (alkanols or acetogenins of Lauraceae), alkylfurans (or avocadofurans), and unsaturated fatty acids in these fractions, which are possibly related to bioactivity observed in ***B. tabaci***, besides saccharides. The results show that kernels of ***P. americana*** are promising sources of compounds with insecticidal action for the control of B***. tabaci*** biotype B, a great opportunity to transform environmental problems into eco-friendly solutions to agriculture.

Record 468/1262: WOS:000599299700028

Source: PLANT PHYSIOLOGY AND BIOCHEMISTRY | 158: 308-320 JAN 2021

Title: In-depth analysis of potential PaAP2/ERF transcription factor related to fatty acid accumulation in avocado (***Persea americana*** Mill.) and functional characterization of two PaAP2/ERF genes in transgenic tomato

Author(s): Ge, Y | Zang, XP | Yang, Y | Wang, T | Ma, WH

Date: JAN 2021

Author keywords: Avocado | AP2/ERF transcription Factor | Gene expression | Fatty acid accumulation

Keywords plus: GENOME-WIDE ANALYSIS | OIL PALM FRUIT | ARABIDOPSIS | WRINKLED1 | BIOSYNTHESIS | EXPRESSION | MESOCARP | DIFFER | SEEDS

Publication year: 2021

Volume: 158

Abstract:

Fatty acids in avocado fruit are crucial components influencing taste as well as fruit quality and nutritional value. Changes to fatty acid contents and concentrations in avocado fruit are important because of the associated effects on sensory properties. Hence, plant physiologists and molecular biologists interested in elucidating the influence of transcription factors on fatty acid accumulation in avocado fruit. In this study, APETALA2/ethyleneresponsive factor (AP2/ERF) family members in avocado (***Persea americana*** Mill.) were systematically and comprehensively analyze to identify potential PaAP2/ERF genes related to fatty acid accumulation. The results of bioinformatics analysis and the expression profiles of the AP2/ERF members suggested that 10 highly expressed PaAP2/ERF genes may encode transcription factors with functions related to the fatty acid accumulation in the avocado mesocarp. Furthermore, PaWRI1 and PaWRI2, two AP2/ERF transcription factor genes in avocado, were functionally characterized regarding their effects on fatty acid accumulation. The transcriptome and biochemical analyses of PaWRI1-2-overexpressing transgenic tomato plants revealed the up-regulated expression of 17 unigenes related to fatty acid synthesis and triacylglycerol assembly as well as increased fatty acid contents relative to the corresponding levels in the wild-type plants. In contrast, the overexpression of PaWRI2 in transgenic tomato plants up-regulated the expression of only six unigenes associated with fatty acid synthesis and triacylglyceml assembly and negligibly affected fatty acid accumulation when compared with wild-type plants. This systematic analysis provides a foundation for future studies regarding AP2/ERF functions associated with fatty acid accumulation.

Record 540/1262: WOS:000582751100007

Source: SCIENTIA HORTICULTURAE | 276: - JAN 27 2021

Title: Molecular and biochemical analyses of avocado (***Persea americana***) reveal differences in the oil accumulation pattern between the mesocarp and seed during the fruit developmental period

Author(s): Ge, Y | Dong, XS | Liu, YZ | Yang, Y | Zhan, RL

Date: JAN 27 2021

Author keywords: Avocado | Oil accumulation | Tissue-specific | Transcription factor | Long non-coding RNA

Keywords plus: COMPARATIVE TRANSCRIPTOME | PALM FRUIT | BIOSYNTHESIS | WRINKLED1 | TRIACYLGLYCEROL | RNA | IDENTIFICATION | ARABIDOPSIS | SPECIFICITY | METABOLISM

Publication year: 2021

Volume: 276

Abstract:

The fatty acids in avocado mesocarp and seed are crucial constituents and possess the critical influence in commercializing for fresh-eating consumption and industrially oil processing. Hence, plant physiologists express an interest in better understanding tissue-specific oil biosynthesis and the associated regulatory network between the developing avocado (***Persea americana***) mesocarp and seed, which will contribute to improving the quality and utility of avocado fruits in food and industrial processing. The results revealed the ever-increasing and fluctuating trends in the oil accumulation in the developing avocado mesocarp and seed, respectively. Additionally, striking differences in the lipid droplets between the developing mesocarp and seed were revealed in confocal microscopy images. The tissue-specific transcription of lipid-related genes contributing to fatty acid synthesis, triacylglycerol assembly, and triacylglyceml storage was examined, and four highly transcribed lipid-related genes (PaFAB2, PaACP4-2, PaDGAT2, and PaFAD2-1) involved in FA synthesis and TAG assembly were indicative of the key roles in oil accumulation variation between the developing avocado mesocarp and seed. A weighted gene co-expression network analysis uncovered two highly expressed lipid-related hub transcription factors (PaPBS1-1 and PaRAP2-3) that each played a crucial part in oil biosynthesis regulatory network in avocado mesocarp and seed, respectively. Moreover, our data also revealed that five highly expressed cis-acting lncRNAs (PB.19359.1, PB.6205.1, PB.4443.3, PB.12340.3, and PB.19743.2) may give rise to the observably differences in the oil accumulation between the developing mesocarp and seed. Our data may be useful for characterizing tissue-specific oil accumulation at the multifaceted levels, thereby identifying four functional genes, two transcription factors, and five lncRNAs for improving the oil production of related plant species.

Record 620/1262: WOS:000610677900001

Source: PLANTS-BASEL | 10 (1): - JAN 2021

Title: Fatty Acid Derivatives Isolated from the Oil of ***Persea americana*** (Avocado) Protects against Neomycin-Induced Hair Cell Damage

Author(s): Park, S | Jeong, SY | Nam, YH | Park, JH | Rodríguez, I | Shim, JH | Yasmin, T | Kwak, HJ

| Oh, Y | Oh, M | Lee, KW | Lee, JS | Kim, D | Park, YH | Moon, IS | Choung, SY | Jeong, KW | Hong, B | Kim, SH | Kang, TH

Date: JAN 2021

Author keywords: avocado oil | fatty acids | hearing loss | zebrafish | hair cell

Keywords plus:

Publication year: 2021

Volume: 10

Abstract:

Avocado oil is beneficial to human health and has been reported to have beneficial effects on sensorineural hearing loss (SNHL). However, the compounds in avocado oil that affect SNHL have not been identified. In this study, we identified 20 compounds from avocado oil, including two new and 18 known fatty acid derivatives, using extensive spectroscopic analysis. The efficacy of the isolated compounds for improving SNHL was investigated in an ototoxic zebrafish model. The two new compounds, namely (2R,4R,6Z)-1,2,4-trihydroxynonadec-6-ene and (2R,4R)-1,2,4-trihydroxyheptadecadi-14,16-ene (compounds 1 and 2), as well as compounds 7, 9, 14, 17 and 19 showed significant improvement in damaged hair cells in toxic zebrafish. These results led to the conclusion that compounds from avocado oil as well as oil itself have a regenerative effect on damaged otic hair cells in ototoxic zebrafish.

Record 940/1262: WOS:000609743600001

Source: ANTIBIOTICS-BASEL | 10 (1): - JAN 2021

Title: Fractionation and Hydrolyzation of Avocado Peel Extract: Improvement of Antibacterial Activity

Author(s): Trujillo-Mayol, I | Casas-Forero, N | Pastene-Navarrete, E | Silva, FL | Alarcón-Enos, J

Date: JAN 2021

Author keywords: antioxidants | biofilm inhibition | phenolic compounds | avocado peel | microwave

Keywords plus:

Publication year: 2021

Volume: 10

Abstract:

Avocado Hass (***Persea americana*** Mill.) peel extract (APE) has the potential as a natural ingredient to substitute for chemical preservatives. The objectives of this study were to assess the phytochemical

composition by high-performance liquid chromatography-quadrupole time-of-flight mass/mass spectrometry (HPLC-qTOF-MS/MS), total phenolic content (TPC), proanthocyanidin (PAC) content, and antioxidant activity of the APE, the organic fraction (OF), the aqueous fraction (AF), and the acid-microwave hydrolyzed APE (HAPE), on the antibacterial activity (ABA). The results indicated that APE and OF contained ($p < 0.05$) a higher phenolic composition and antioxidant activity than AF and HAPE. The ABA specified that ***Pseudomonas aeruginosa*** and ***Bacillus cereus*** were inhibited by all the extracts (minimal inhibitory concentration-MIC >= 500 mu g/mL), ***Staphylococcus aureus*** was only significantly inhibited by APE (>= 750 mu g/mL), the same MIC was observed for the OF on ***Salmonella spp***. and ***Listeria monocytogenes***. The HAPE increased the inhibitory efficiency up to 25% on ***Escherichia coli*** and Salmonella spp. (MIC >= 750 mu g/mL), and 83.34% on L. monocytogenes (MIC >= 125 mu g/mL) compared to APE (MIC >= 750 mu g/mL). Also, HAPE inhibited the biofilm formation at the lowest concentration (125 mu g/mL); meanwhile, the biofilm disruption showed to be concentration-time-dependent ($p > 0.05$) compared to amoxicillin. In conclusion, the fractionation and hydrolyzation of APE improved the ABA; thus, those strategies are useful to design new antimicrobial compounds.

Record 127/1262: WOS:000562954000026

Source: ACS INFECTIOUS DISEASES | 6 (8): 2291-2300 AUG 14 2020

Title: Characterization of a New Antienterovirus D68 Compound Purified from Avocado

Author(s): Arita, M | Fuchino, H | Kawakami, H | Ezaki, M | Kawahara, N

Date: AUG 14 2020

Author keywords: virus | enterovirus D68 | avocado | ***Persea americana*** | antiviral | edible plant

Keywords plus: ENTEROVIRUS D68 | RESPIRATORY ILLNESS | PERSEA-AMERICANA | RNA-SYNTHESIS | POLIOVIRUS | REPLICATION | INFECTION | CONSTITUENTS | RHINOVIRUS | INHIBITORS

Publication year: 2020

Volume: 6

Abstract:

One of the major challenges in development of antienterovirus (EV) drugs is in the safety of the drug. Here, we attempted to identify anti-EV compounds from an edible plant extract library and found potent antienterovirus D68 (EV-D68) activity in avocado (***Persea americana***). The purified identity is determined as 2R,4R-(12Z,15Z)-heneicosa-12,15-diene-1,2,4-triol, named avoenin. Avoenin shows an EC50, of 2.0 mu M for EV-D68 (Fermon) infection with CC50 of >150 mu M in RD cells by targeting the uncoating step of EV-D68 infection. Resistant mutations of EV-D68 (VP3-V24I, S173P, and S180G) to

avoenin confer cross-resistance to pleconaril, an uncoating inhibitor of EV-D68. The inhibitory effect of avoenin is substantially specific to EV-D68 among the EVs. This work reveals avoenin as the identity of anti-EV-D68 activity in avocado and offers insights into development of a novel and effective strategy to overcome EV-D68 infection and its related respiratory diseases.

Record 138/1262: WOS:000505591800007

Source: JOURNAL OF THE AMERICAN SOCIETY FOR HORTICULTURAL SCIENCE | 145 (1): 53-59 JAN 2020

Title: Outcrossing Rate and Genetic Variability in Mexican Race Avocado

Author(s): Sánchez-González, EI | Gutiérrez-Diez, A | Mayek-Pérez, N

Date: JAN 2020

Author keywords: ISSR | outcrossing | ***Persea americana*** | var. drymifolia | SSR

Keywords plus: PERSEA-AMERICANA MILL. | MICROSATELLITE MARKERS | POPULATION | PATTERNS | DISTANCE | SYSTEM | YIELD | TREES | LOCI

Publication year: 2020

Volume: 145

Abstract:

The blooming behavior of the avocado ***Persea americana*** Mill. is a sophisticated mechanism that prevents effective self-pollination, enables close pollination, and encourages cross-pollination. However, there is no information on outcrossing rate among Mexican race avocado genotypes (***P. americana*** var. drymifolia Schltdl. & Cham.). Therefore, the objective of this study was to assess the outcrossing rate and genetic variability in progenies of Mexican race avocado genotypes by simple sequence repeat (SSR) and intersimple sequence repeat (ISSR) markers. SSR marker analysis showed a considerable genetic differentiation among avocado families [total expected heterozygosity (He) = 0.540], whereas the total heterozygosity value observed (Ho = 0.098) showed the presence of genetic structure per family. The total Nei's unbiased average heterozygosity (nHe) value found with ISSR markers was 0.482. The results of the analysis of molecular variance (AMOVA) combining both type of markers showed that genetic variation within avocado families was 58.6%, and among families was 41.6% ($P < 0.0001$). The outcrossing population rate in ***P. americana*** var. drymifolia was 0.774 +/- 0.091 (SD), and the 'Criolla 3' and 'Platano Temprano' families showed the lowest (-0.083 +/- 0.031) and highest (0.814 +/- 0.060) outcrossing rates, respectively. Variability in outcrossing rate depends on many factors, including edaphoclimatic, agronomic, and genetic, and needs to be considered to define strategies for the conservation and genetic improvement of outstanding native genotypes. SSR and ISSR markers are

useful for estimating genetic variability within and among families of avocado, as well as for determining the outcrossing rates among closely related individuals and with a rather small sample size.

Record 140/1262: WOS:000508491000055

Source: JOURNAL OF FUNCTIONAL FOODS | 64: - JAN 2020

Title: Lipid-rich extract from Mexican avocado (***Persea americana*** var. drymifolia) induces apoptosis and modulates the inflammatory response in Caco-2 human colon cancer cells

Author(s): Lara-Márquez, M | Báez-Magana, M | Raymundo-Ramos, C | Spagnuolo, PA | Macías-Rodríguez, L | Salgado-Garciglia, R | Ochoa-Zarzosa, A | López-Meza, JE

Date: JAN 2020

Author keywords: Colon cancer | Long-chain lipids | Apoptosis | Avocado | ***Persea americana***

Keywords plus: ACID-BINDING PROTEINS | COLORECTAL-CANCER | GENE-EXPRESSION | LINOLEIC-ACID | FATTY-ACIDS | IN-VIVO | OIL | ACETOGENINS | OXIDATION | PHYTOCHEMICALS

Publication year: 2020

Volume: 64

Abstract:

Colorectal cancer (CRC) is the third most common type of cancer worldwide. Chemotherapy used in CRC patients has severe side effects. As an alternative, the search to identify natural compounds increases the opportunity to select therapeutics. In this work, the cytotoxic effect of a lipid extract (LEAS) from Mexican native avocado seed (***Persea americana*** var. drymifolia) on colon cancer cells Caco-2 was determined. LEAS was cytotoxic towards Caco-2 cells (IC50 = 28 mu g/ml), inducing apoptosis through the activation of caspases 8 and 9. Also, LEAS induced loss of membrane mitochondrial potential, inhibited fatty acid oxidation and increased the superoxide production and mitochondrial ROS. Furthermore, LEAS stimulated secretion of cytokines IL-6 (similar to 500%), IL-8 (similar to 400%) and IL-10 (similar to 150%); whereas IL-1 beta secretion was inhibited (similar to 50%). The results suggest that LEAS induces apoptosis on Caco-2 cells, indicating that avocado is a source of functional food products that can reduce the risk for development of cancer.

Record 160/1262: WOS:000591357100015

Source: PAKISTAN JOURNAL OF PHARMACEUTICAL SCIENCES | 33 (6): 2579-2587 NOV 2020

Title: ***Persea americana*** seeds improve glycosylation and dyslipidemia in fructose-fed streptozotocin-injected type 2 diabetic male rats

Author(s): Mudassir, HA | Khaliq, S | Azmi, MB | Bano, M | Naheed, M | Fatima, M | Saeedullah

Date: NOV 2020

Author keywords: Insulin resistance | fructose | STZ | FIRI | ***Persea americana***

Keywords plus: FAT | MODEL | FRUIT | ASSAY | DIET | L.

Publication year: 2020

Volume: 33

Abstract:

This work explored the in-vitro phytochemical contents and antidiabetic activity of crude seeds powder of ***Persea americana*** (CSSPa) and their in-vivo biochemical effects on glycated hemoglobin, lipid profile and other parameters in type 2 diabetic rats (fructose-STZ model). There were 2 groups of over night fasted rats, control (noimal diet) and diabetic (35% Fructose for 6 weeks followed with injection (i.p.) of streptozotocin (STZ) (40mg/kg bw). Diabetic group was further divided into diabetic control, positive control (pioglitazone 15mg) and test (CSSPa 500mg) groups. After the appropriate treatments in each group for 2 weeks fasting glucose level (FGL), serum lipids, insulin, alanine aminotransferase (ALT), creatine Kinase (CK) & uric acid were determined. CSPPa showed presence of alkaloids, flavonoids, phenols etc and potent antidiabetic activity with IC50 13.23 +/- 0.76 mu M. CSPPa treatment showed a significant ($p<0.01$) decline in lipid profile, while HDL showed significant increase ($p<0.01$) in test group as compared with positive and diabetic control groups. The serum ALT, CK, uric acid, bilirubin & fasting glucose (fbg) showed significant improvements in test group ($p<0.01$). Coronary risk index (CRI), Fasting insulin resistance index (FIRI), Percent glycemic change (PGC) and HbA1c values also significantly ($p<0.01$) improved.

Record 172/1262: WOS:000499998600001

Source: JOURNAL OF PLANT PATHOLOGY | 102 (2): 319-325 MAY 2020

Title: Antimicrobial activity of ***Ocimum gratissimum*** L. and ***Carica papaya*** L. against postharvest pathogens of avocado pear (***Persea americana*** Mill.)

Author(s): Onaebi, C | Onyeke, C | Osibe, D | Ugwuja, F | Okoro, A | Onyegirim, P

Date: MAY 2020

Author keywords: Phytopathogens | Pathogenicity | Postharvest | Plant extracts | ***Persea americana***

Keywords plus: ANTIFUNGAL ACTIVITY | ESSENTIAL OIL | EXTRACTS

Publication year: 2020

Volume: 102

Abstract:

Phytopathogenic fungi associated with postharvest rot of avocado pear were isolated and identified. The identification was based on their morphological and microscopic characteristics. The effects of ethanolic plant extracts of ***Ocimum gratissimum*** L. and ***Carica papaya*** L. on *in vitro* inhibition of the mycelia growth of the isolates were determined. The isolates were identified as ***Aspergillus niger***, ***Aspergillus flavus***, ***Galactomyces candidum***, ***Trichoderma viride***, ***Rhizopus delemar*** and ***Lasiodiplodia pseudotheobromae*** and were confirmed by pathogenicity test as the causal agents of fungal rot of avocado pear. The extracts inhibited the mycelia growth of the pathogens except ***R. delemar***, to a significant level ($P < 0.05$) at different concentrations of 20, 40, 60, 80 and 100 mg/ml. The inhibitory effects of the plant extracts increased with increase in concentration. The fungicidal activity was strongly exhibited by ***O. gratissimum*** at 100 mg/ml against all the pathogens except ***R. delemar*** which showed no inhibition at all concentration. ***Carica papaya*** extract was more effective against A. flavus with inhibitory effects of 38.45 +/- 5.18, 30.40 +/- 1.85 and 21.47 +/- 3.24% at 80, 60 and 20 mg/ml concentration, respectively. The inhibitions were significantly different at $P < 0.05$. It could be concluded that the plant extracts can effectively control fungal rot of ***Persea americana*** Mill. and as such potential biofungicide for the management of postharvest losses.

Record 178/1262: WOS:000505924300194

Source: SCIENCE OF THE TOTAL ENVIRONMENT | 703: - FEB 10 2020

Title: Use of the natural products from the leaves of the fruitfull tree ***Persea americana*** against Candida sp. biofilms using acrylic resin discs

Author(s): de Freitas, MA | Andrade, JC | Alves, AIS | Dos Santos, FDG | Leite-Andrade, MC | Sales, DL | Nunes, M | Ribeiro, PRV | Coutinho, HDM | Morais-Braga, MFB | Neves, RP

Date: FEB 10 2020

Author keywords: Fungal resistance | Acrylic resin | Biofilm | ***Persea americana*** | Candida sp.

Keywords plus: ANTIFUNGAL ACTIVITY | SCIENTIFIC EVIDENCE | PHENOLIC-COMPOUNDS | MASS-SPECTROMETRY | ALBICANS BIOFILM | MECHANISMS

Publication year: 2020

Volume: 703

Abstract:

The search for natural substances such as plant extracts with antimicrobial properties has considerably increased, given that biofilms constitute a barrier against antifungal therapy, where these can be formed on any surface, such as acrylic resin prosthesis. The objective of this study was to identify the chemical composition of the ***Persea americana*** Mill. leaf ethanol extract (EEFPa) using the UPLC-QTOF-MS/MS technique, to verify its antifungal activity through a sensitivity test according to the conditions described in the documents in M27-A3 (CLSI, 2008) and M60 (CLSI, 2017), to induce biofilm formation in acrylic resin discs and quantify their formation using tetrazolium salt reduction (MTT), as well as to treat these with the extract and fluconazole. Ten of the twelve compounds present in the extract were identified. In the sensitivity test the lowest minimum inhibitory concentration observed was 512 mu g/mL, while fluconazole concentrations ranged from 64 to 1 mu g/mL. During biofilm induction, all the isolates were able to form biofilms within 48 h. During biofilm treatment, the extract was less effective at biofilm reduction than Fluconazole. The EEFPa showed significant antifungal activity against some of the strains in this study, however the extract showed lower effect when compared to fluconazole against the biofilm formation.

Record 204/1262: WOS:000592117200006

Source: BOLETÍN LATINOAMERICANO Y DEL CARIBE DE PLANTAS MEDICINALES Y AROMÁTICAS | 19 (4): 395-407 JUL 2020

Title: Characterization of ***Persea americana*** Mill. peels and leaves extracts and analysis of its potential *in vitro* anti-inflammatory properties

Author(s): Ovalle-Marin, A | Parra-Ruiz, C | Rivas, F | Orellana, JF | García-Díaz, DF | Jiménez, P

Date: JUL 2020

Author keywords: ***Persea americana*** | Avocado | Antioxidant | Polyphenols | Anti-inflammatory features

Keywords plus: NF-KAPPA-B | ANTIOXIDANT CAPACITY | PROCYANIDIN TRIMER | AQUEOUS EXTRACT | NO PRODUCTION | POLYPHENOLS | FRUITS | C1 | VEGETABLES | PHENOLICS

Publication year: 2020

Volume: 19

Abstract:

There is a worldwide trend of increasing prevalence of non-communicable diseases characterized by a chronic inflammatory state. Therefore, it is important to study the relationship between food and health. Avocado (***Persea americana***) stands out in food industry for its nutritional value. Industrials process

of avocado generates a large number of by-products, which contain phytochemical compounds with antioxidant properties, such as polyphenols. The objective of the present research was to characterize four aqueous and hydroalcoholic extracts from avocado leaves and peels and analyze it possible anti-inflammatory properties *in vitro*. Total polyphenol content (with the Folin-Ciocalteau method) and antioxidant capacity (by FRAP and DPPH) were determined. Extracts inflammatory features were measured by NO and TNF-alpha release, and by TNF-alpha gene expression. Our results indicated that hydroalcoholic extracts present higher total polyphenol content ($p<0.001$) and antioxidant capacity ($p<0.001$, by FRAP) than the aqueous ones. Furthermore, we report that hydroalcoholic leaves extract presented greater *in vitro* anti-inflammatory effect, especially the leave hydroalcoholic regarding NO release ($p<0.001$, against LPS treatment), aqueous and hydroalcoholics regarding TNF-alpha release ($p<0.05$), and only the hydroalcoholic in the TNF-alpha gene expression ($p<0.01$). In conclusion, the avocado hydroalcoholic extracts, and especially from leaves, present *in vitro* anti-inflammatory features that might be considered for human health improvement applications.

Record 208/1262: WOS:000517839800018

Source: FOOD CHEMISTRY | 317: - JUL 1 2020

Title: Lactic acid fermentation enriches the profile of biogenic fatty acid derivatives of avocado fruit (***Persea americana*** Mill.)

Author(s): Filannino, P | Tlais, AZA | Morozova, K | Cavoski, I | Scampicchio, M | Gobbetti, M | Di Cagno, R

Date: JUL 1 2020

Author keywords: Avocado fruit | Lactic fermentation | Fatty acids | Hydroxy fatty acids | Linoleic acid

Keywords plus: GUT MICROBIAL METABOLITE | LINOLEIC-ACID | 10-HYDROXY-CIS-12-OCTADECENOIC ACID | FUNCTIONAL FEATURES | OLEIC-ACID | SHELF-LIFE | HYDRATASE | BACTERIA | IMPROVE

Publication year: 2020

Volume: 317

Abstract:

This study investigated the capability of selected autochthonous lactic acid bacteria to enrich the portfolio of bioactive compounds of avocado fruit (***Persea americana*** Mill.), with the perspective of producing dietary supplements or pharmaceutical preparations. Fermented avocado puree resulted in high levels of total free amino acids. Fermentation also led to a marked increase of antioxidant activity,

with the highest levels found in water and hexane soluble extracts. Bio-converted phenolic compounds and fatty acids derivatives resulting from bacterial metabolism were likely responsible for the increased antioxidant activity. Fermentation caused the fortification of avocado puree with some hydroxy fatty acids, which deserved marked attention due to their health-promoting activities. Oleic and linoleic acids were highly metabolized by ***Lactobacillus plantarum*** AVEF17, leading to high levels of mono, di-, and tri-hydroxy-octadecenoic acids.

Record 258/1262: WOS:000571399300001

Source: REVISTA BRASILEIRA DE FRUTICULTURA | 42 (5): - 2020

Title: Genetic and chemical characterization of avocado commercial cultivars avocado of Risaralda Colombia

Author(s): Álvarez, GEG | Gutiérrez, AML | Valencia, KA | Mossos, PS | Rozo, DLS | Hurtado, NC

Date: 2020

Author keywords: Antioxidants | DNA | fatty acids | microsatellites | ***Persea americana*** Mill. | total phenols

Keywords plus: PERSEA-AMERICANA MILL. | ANTIOXIDANT CAPACITY | DIVERSITY | OPTIMIZATION | QUALITY | MARKERS | FRUITS | PULP | OILS

Publication year: 2020

Volume: 42

Abstract:

This research aimed at performing the molecular characterization of commercial Papelillo avocado (***Persea americana*** cv Lorena) cultivars from the municipality of Marsella (Risaralda, Colombia), as well as the physicochemical analysis and antioxidant activity assessment of the pulp and seed. An evaluation of 50 individuals among commercial varieties and possible patterns was performed using 17 microsatellite markers. Proximate analysis of the pulp was performed, and the fatty acid profile of oils, the antioxidant activity by the DPPH and FRAP methods, and the total phenolic content were evaluated. From the cluster analysis, Dice index, and Principal Coordinates Analysis, it became evident that all the individuals showed a tendency to group by populations. In addition, the pulp revealed high fiber contents (4.96-20.64%) and moisture (80.75-82.96%); however, it showed low oil content (5.97-6.56%). The fatty acid found in the highest proportion in seed oil is linoleic acid and that in pulp oil is oleic acid. The antioxidant activity by the DPPH method for seed oil (87.87 to 91.04%) presented a greater inhibition concerning to the pulp oil (20.34% and 24.43%), this same trend was observed by the FRAP method. Concerning the content of total phenols, the seed oil (31.94-76.30 mg GAE g(-1)) has a higher

value than the pulp (30.18-54.30 mg GAE g-1). The set of samples was characterized as a significant source of genetic variability; thanks to the excellent alternatives they provide as rootstocks for commercial varieties such as the 'Lorena' cultivars. The chemical classification carried out in this study is of great importance, due to the lack of information about the oil of the 'Papelillo' avocado cultivated in different regions of Colombia.

Record 262/1262: WOS:000601296300001

Source: EVIDENCE-BASED COMPLEMENTARY AND ALTERNATIVE MEDICINE | 2020: - DEC 10 2020

Title: Hypotensive and Antihypertensive Properties and Safety for Use of Annona muricata and ***Persea americana*** and Their Combination Products

Author(s): Sokpe, A | Mensah, MLK | Koffuor, GA | Thomford, KP | Arthur, R | Jibira, Y | Baah, MK | Adedi, B | Agbemenyah, HY

Date: DEC 10 2020

Author keywords:

Keywords plus: ANGIOTENSIN-II | HYPERTENSION | ALCOHOL | LEAVES | AVOCADO | CARE

Publication year: 2020

Volume: 2020

Abstract:

Introduction. In the management of hypertension (a cardiovascular disease and the leading metabolic risk factor in noncommunicable diseases) with herbal medicines, efficacy and safety are of uttermost concern. This study sought to establish hypotensive, antihypertensive, drug interaction, and safety for use of the aqueous leaf extracts of ***Annona muricata*** (AME), ***Persea americana*** (PAE), or their combination products (CAPE). Methodology: Systolic and diastolic blood pressure (SBP and DBP), mean arterial blood pressure (MAP), and heart rate (HR) were measured in normotensive Sprague-Dawley rats treated with 50-150 mg/kg of AME, PAE, or CAPE to establish a hypotensive effect. "Combination index" was calculated to establish interaction between AME and PAE. The antihypertensive effect of CAPE was established by measuring SBP, DBP, MAP, and HR in ethanol-sucrose- and epinephrine-induced hypertension. Full blood count, liver and kidney function tests, and urinalysis were determined in ethanol/sucrose-induced hypertension to establish safety for use. Results. AME, PAE, and CAPE significantly ($p <= 0.001$) decreased BP in both normotensive and hypertensive animals. Effects of CAPE 1, CAPE 2, and CAPE 3 were synergistic (combination indices of 0.65 +/- 0.07, 0.76 +/- 0.09, and 0.87 +/- 0.07, respectively). There was a significant decrease ($p <=$

0.01-0.001) in SBP and MAP with 100 mg/kg CAPE 1 and 75 mg/kg CAPE 2 treatment in hypertension as well as with nifedipine (p <= 0.001) treatment. Epinephrine-induced hypertension in anesthetized cats was significantly and dose-dependently inhibited (p<0.05-0.001) by 25-100 mg/ml CAPE 1 and 37.5-75 mg/ml CAPE 2. CAPE administration had no deleterious effect (p>0.05) on full blood count, liver and kidney function, and urine composition in hypertensive rats. Conclusion. The aqueous leaf extracts of ***Annona muricata***, ***Persea americana***, and their combination products possess antihypertensive properties, with combination products showing synergism and safety with use.

Record 284/1262: WOS:000510532100097

Source: SCIENTIA HORTICULTURAE | 261: - FEB 5 2020

Title: Fatty acid and volatile organic compound profiling of avocado germplasm grown under East-Central Florida conditions

Author(s): Ali, S | Plotto, A | Scully, BT | Wood, D | Stover, E | Owens, N | Pisani, C | Ritenour, M | Anjum, MA | Nawaz, A | Naz, S | Bai, JH

Date: FEB 5 2020

Author keywords: ***Persea americana*** | Volatile organic compounds | VOC | Fatty acid | Unsaturated fatty acid

Keywords plus: PERSEA-AMERICANA | HASS AVOCADO | CULTIVARS | ETHYLENE | BIOSYNTHESIS | POSTHARVEST | MATURITY | QUALITY | FLAVOR | ODOR

Publication year: 2020

Volume: 261

Abstract:

Worldwide avocado consumption is growing due to potential health benefits. Most research has been focused on 'Hass', which does not perform well in Florida. Fatty acids and volatile organic compounds (VOCs) were evaluated in 14 avocado genotypes grown in East-Central Florida conditions and compared to 'Hass'. Two saturated and five unsaturated fatty acids were detected. Total oil content (TOC) was 11-25%, with 58.2-71.5% unsaturated fatty acids (UFA). 'FL Hass' contained 20% TOC, near the average for genotypes tested, but with a low UFA of 61.9%. 'PA-6206' (a 'Hass' x 'Bacon' seedling) and '35707' (a 'Catalina' seedling) had higher TOC and UFA than other genotypes, while the mostly West Indian types such as 'Simmonds', 'Day', 'Pflume' and 'Miguel' had low TOC. Detected VOCs were acetaldehyde, hexanal, (E)-2-hexenal, limonene, alpha-cubebene, alpha-copaene, and beta-caryophyllene. Most genotypes contained most of the VOCs. 'Monroe' lacked C6 aldehydes, and 'Pflume', 'Bernecker-43', 'Lula' and '35707' lacked some or all sesquiterpenes.

Record 287/1262: WOS:000586226700001

Source: MINERALS | 10 (10): - OCT 2020

Title: Recovery of Iron Nanoparticles from Mine Wastewater Using Plant Extracts of Eucalyptus Globulus, Callistemon Viminalis and ***Persea americana***

Author(s): Razanamahandry, LC | Nwanya, AC | Akharame, MO | Muhammad, BU | Ntwampe, SKO | Fosso-Kankeu, E

Date: OCT 2020

Author keywords: Callistemon viminalis | Eucalyptus globulus | heavy metal precipitation | iron nanoparticles | mining wastewater | ***Persea americana*** | plant extracts

Keywords plus: HUMAN HEALTH-RISKS | OXIDE NANOPARTICLES | GREEN SYNTHESIS | HEAVY-METALS | CYANIDE | AREA | PHYTOREMEDIATION | BIODEGRADATION | ANTIOXIDANT | PERFORMANCE

Publication year: 2020

Volume: 10

Abstract:

Mine wastewater (MW) is often rich in heavy metals that can have measurable effects on humans. The storage and treatment of MW remains a challenge for most mining companies. Iron (Fe) in MW was removed by using extracts from Eucalyptus globulus (EG); Callistemon viminalis (CV); and ***Persea americana*** (AS). Fe was removed from MW samples with an initial concentration of 5.53 mg Fe mL(-1); 4.63 mg Fe mL(-1) and 4.40 mg Fe mL(-1) using EG leaves, CV flowers and AS seed extracts, respectively. Conditions of the MW decontamination were studied by varying the dosage of the plant extracts, the temperature of the medium and the contact time between the MW and the plant extracts. Undiluted plant extracts-which were mixed with the MW and heated at 45 degrees C for 3 h-gave the highest Fe-removal efficiency for CV (70%) and AS (53%) extracts, respectively. Similarly, EG extracts, albeit heated at 25 degrees C, showed a higher Fe-removal efficiency (85%) than the CV and AS extracts at low to high temperatures. The residual Fe concentration in the MW was 0.83 mg Fe mL(-1), 1.39 mg Fe mL(-1) and 2.07 mg Fe mL(-1) for EG, CV and AS extracts, respectively. Residue solid-phase deposits from the precipitation reaction of the MW with the plant extracts were collected and analyzed. Fe was among the byproducts detected in the deposited material. The characterization of the annealed solid-phase deposits revealed Fe precipitates as maghemite-C (Fe_2O_3) and magnetite ($FeFe_2O_4$) nanoparticles. Therefore, the MW quality and form were improved, making it reusable for other purposes.

Record 318/1262: WOS:000603399600025

Source: JOURNAL OF AGRICULTURAL AND FOOD CHEMISTRY | 68 (51): 15301-15310 DEC 23 2020

Title: Chemical Characterization of Two California-Grown Avocado Varieties (***Persea americana*** Mill.) over the Harvest Season with an Emphasis on Sensory-Directed Flavor Analysis

Author(s): Hausch, BJ | Arpaia, ML | Kawagoe, Z | Walse, S | Obenland, D

Date: DEC 23 2020

Author keywords: avocado | ***Persea americana*** Mill. | SAFE | GCO | AEDA | FAMEs | oleic acid | 1-octen-3-one | peroxidation | oxidation

Keywords plus: CHROMATOGRAPHY-MASS SPECTROMETRY | HASS AVOCADO | VOLATILE COMPONENTS | AROMA VOLATILES | IDENTIFICATION | POSTHARVEST | THRESHOLDS | MATURITY | QUALITY | ACID

Publication year: 2020

Volume: 68

Abstract:

The research objective was to characterize avocado's aroma-active volatiles and use information about its overall composition, such as lipid profile, to discuss likely biosynthetic origins. To achieve this, two varieties, "Hass" and "3-29-5" (GEM), were evaluated during their commercial harvest period for dry weight, moisture content (freeze-drying), oil content (Soxhlet extraction), fatty acid composition, and aroma profile. Solvent-assisted flavor evaporation and aroma extract dilution analysis were performed on aroma extracts. Oleic acid (>50%) was the prominent fatty acid in the oil of both varieties. The majority of the aroma active compounds in avocado are lipid-derived. The most notable compounds are 1-octen-3-one (mushroom) with a flavor dilution factor as high as 8192, hexanal (grassy), (Z)-4-decenal, an unknown, and (E,E)-2,4-nonadienal. Over the mid-to-late harvest season, a decline in hexanal and an increase in octanal were observed. In contrast to "Hass", the hexanal content was relatively stable in "3-29-5".

Record 349/1262: WOS:000601465300001

Source: HORTICULTURAE | 6 (4): - DEC 2020

Title: The Relationship between Fruit Size and Phenolic and Enzymatic Composition of Avocado Byproducts (***Persea americana*** Mill.): The Importance for Biorefinery Applications

Author(s): Trujillo-Mayol, I | Badillo-Munoz, G | Céspedes-Acuna, C | Alarcón-Enos, J

Date: DEC 2020

Author keywords: polyphenols | avocado byproducts | abiotic stress | CHS | PAL | PPO | biorefinery | circular economies

Keywords plus: PHENYLALANINE-AMMONIA-LYASE | ANTIOXIDANT ACTIVITY | POLYPHENOL OXIDASE | POTATO PEEL | IN-VITRO | L. | PURIFICATION | POSTHARVEST | EXTRACTION | HASS

Publication year: 2020

Volume: 6

Abstract:

Avocado byproducts are a rich source of health-promoting biomolecules. The purpose of this work is to study three groups of statistically different avocado fruit sizes (***Persea americana*** Mill.), (small (S), medium (M), and large (L)), and their relationship with total phenolic and flavonoid contents (TPC and TFC, respectively), DPPH (2,2-diphenyl-1-picrylhydrazyl) scavenging capacity and individual phenolics, and the activities of phenylalanine ammonia-lyase (PAL), chalcone synthase (CHS), and polyphenol oxidase (PPO) in avocado peel extract (APE). The results indicated that TPC, TFC, and antioxidant and enzymatic activities were higher in the APE of the S group ($p < 0.05$). The flavonoids (flavanols and flavonols) and phenolic acids were also significatively concentrated in S group's APE. Overall, the phenolic content was significantly lower in the L group. Positive correlations ($p < 0.0001$ and $p < 0.05$) were observed between TPC, TPF, DPPH, and enzymatic activity, and negative correlations resulted for avocado weight and volume. The outstanding phenolic content and enzymatic activity of avocado peels from low-cost avocado byproducts are ideal for biorefinery applications, thereby increasing the bioeconomy of the avocado industry.

Record 364/1262: WOS:000595536300001

Source: ANAIS DA ACADEMIA BRASILEIRA DE CIENCIAS | 92 (4): - 2020

Title: Molluscicidal activity of ***Persea americana*** Mill. (Lauraceae) stem bark ethanolic extract against the snail ***Biomphalaria glabrata*** (Say, 1818): a novel plant-derived molluscicide?

Author(s): Silva, YRR | Silva, LD | Rocha, TL | Dos Santos, DB | Bezerra, JCB | Machado, KB | De Paula, JAM | Amaral, VCS

Date: 2020

Author keywords: embryotoxicity | flavonoids | intermediate host | Schistosoma mansoni | schistosomiasis control

Keywords plus: CHEMICAL-COMPOSITION | TOXICITY | VARIEGATA | LEAVES

Publication year: 2020

Volume: 92

Abstract:

Plant-derived molluscicides have been indicated as biodegradable and low-cost strategies for control of ***Biomphalaria spp.***, intermediate host for the Schistosoma. This study evaluated whether the crude ethanolic extract of the ***Persea americana*** stem bark has molluscicidal activity against embryos, newly -hatched and adults of ***Biomphalaria glabrata***. The extract was obtained, characterized and its toxicity analyzed by snail embryotoxicity test (144 h) and acute toxicity test with newly-hatching and adult snails (96 h). Results showed the presence of flavonoids, anthraquinone heterosides, coumarins and tannins in the crude ethanolic extract, which showed molluscicidal activity against all life cycle stages of ***B. glabrata***. The LC50 for embryos, newly-hatched and adults were 27.06, 30.60 and 55.55 ppm, respectively. Embryos exposed to the extract at 50 ppm showed hatching inhibition and at 6.2 and 25 ppm had the highest rates of morphological alterations, such as shell malformations and coagulation of the perivitelline substance. Adult snails exposed to the extract at 75 ppm showed a peak of behavioral changes, such as lethargy and shell reclusion, in addition to answers like hemolymph release in most concentrations. Further studies are required, prioritizing toxicity testing on non-target organisms and further elucidation of the active molecules.

Record 546/1262: WOS:000580547900001

Source: PLANTS-BASEL | 9 (9): - SEP 2020

Title: Endophytic Trichoderma Species Isolated from ***Persea americana*** and ***Cinnamomum verum*** Roots Reduce Symptoms Caused by ***Phytophthora cinnamomi*** in Avocado

Author(s): Andrade-Hoyos, P | Silva-Rojas, HV | Romero-Arenas, O

Date: SEP 2020

Author keywords: antagonism | biocontrol | disease incidence | root rot | soil-borne

Keywords plus: RHIZOCTONIA-SOLANI | HARZIANUM | ANTAGONISM | BIOCONTROL | SPP. | RESISTANCE | INFERENCE | DEFENSE | COMPLEX | MRBAYES

Publication year: 2020

Volume: 9

Abstract:

Avocado root rot caused by the oomycete ***Phytophthora cinnamomi*** is a severe disease that affects

avocado production in Mexico and worldwide. The use of biological control agents such as Trichoderma species isolated from places where the disease is always present, represents an efficient alternative to reduce losses. Thus, the objective of this research was to evaluate the biocontrol ability of 10 endophytic ***Trichoderma spp***. strains against ***P. cinnamomi*** tested both *in vitro* and in the greenhouse. The endophytic ***Trichoderma spp***. were recovered from ***Persea americana*** and ***Cinnamomum verum*** roots, isolated and purified on potato-dextrose-agar medium. Ten strains were identified by phylogenetic reconstruction of the internal transcribed spacer region of rDNA sequences as ***T. asperellum*** (T-AS1, T -AS2, T-AS6, and T-AS7), ***T. harzianum*** (T-H3, T-H4, and T-H5), ***T. hamatum*** (T-A12), ***T. koningiopsis*** (T-K8 and T-K11), and ***P. cinnamomi*** (CPO-PCU). *In vitro* dual-culture assay, the percentage of inhibition of radial growth (PIRG) between ***Trichoderma spp***. and ***P. cinnamomi*** strains was measured according to the Bell's scale. PIRG results indicated that T-AS2 reached the highest value of 78.32%, and T-H5 reached the lowest value of 38.66%. In the greenhouse, the infection was evaluated according to the percentage of disease incidence. Plants with the lowest incidence of dead by avocado root rot were those whose seedlings were inoculated with T-AS2 and T-AS7, resulting in only 5% death by root rot caused by ***P. cinnamomi***. The disease incidence of seedlings with wilt symptoms and death decreased more than 50% in the presence of Trichoderma spp. Relying on the results, we conclude that ***T. asperellum*** and ***T. harzianum*** contribute to the biocontrol of soil-borne pathogenic oomycete ***P. cinnamomi***.

Record 674/1262: WOS:000505021000001

Source: INTERNATIONAL JOURNAL OF FOOD SCIENCE AND TECHNOLOGY | 55 (5): 2208-2218 Sp. Iss. SI MAY 2020

Title: Bioactive compounds and antioxidant activity from harvest to edible ripeness of avocado cv. Hass (***Persea americana***) throughout the harvest seasons

Author(s): Campos, D | Terán-Hilares, F | Chirinos, R | Aguilar-Gálvez, A | García-Ríos, D | Pacheco-Ávalos, A | Pedreschi, R

Date: MAY 2020

Author keywords: Avocado | bioactive compounds | cold storage | edible ripeness

Keywords plus: FATTY-ACIDS | PHENOLIC-COMPOUNDS | TOF MS | FRUIT | METABOLITES | WALNUTS | SIGNALS | QUALITY | PROFILE | STRESS

Publication year: 2020

Volume: 55

Abstract:

The influence of regular air cold storage (7 degrees C and 85 +/- 5% RH) followed by ripening at shelf-life conditions (19-21 degrees C and 65 +/- 5% RH), on bioactive compounds of Hass avocados was investigated. Results showed that the content of mannoheptulose and perseitol decreased significantly already during cold storage and ripening period. The fatty acid profile and contents of tocopherols (alpha - and beta-tocopherol) and phytosterols (beta-sitosterol, stigmasterol, campesterol) remained unchanged from day 0 to edible ripeness. Total phenolics, hydrophilic and lipophilic antioxidant capacity remained unchanged during cold storage and increased during the ripening period. At edible ripeness, significant amounts of phenolic acids, p-coumaric and caffeic and their derivatives were synthesized. Our results demonstrated that regular air cold storage for up to 37 days followed by ripening at shelf-life conditions enhances the phenolic compounds and mainly the hydrophilic antioxidant capacity without affecting the remaining bioactive compounds in Hass avocado.

Record 695/1262: WOS:000567987700020

Source: JOURNAL OF FOOD ENGINEERING | 289: - JAN 2021

Title: Assessment of avocado textural changes during ripening by using contactless air-coupled ultrasound

Author(s): Farinas, L | Sánchez-Torres, EA | Sánchez-Jiménez, V | Díaz, R | Benedito, J | García-Pérez, JV

Date: JAN 2021

Author keywords: Avocado | Air-coupled ultrasound | Texture | Ripening

Keywords plus: PERSEA-AMERICANA MILL. | PIEZOELECTRIC TRANSDUCERS | FRUIT | HASS | POSTHARVEST | HETEROGENEITY | SPECTROSCOPY | MATURITY

Publication year: 2021

Volume: 289

Abstract:

In the present study, the use of the air-coupled ultrasonic technique has been analysed as a new tool for the contactless assessment of the avocado post-harvest textural modifications during ripening. Thus, ultrasonic parameters, such as maximum wave amplitude and ultrasound velocity, and textural ones, such as hardness, elastic modulus and relaxation capacity, were measured on avocado slices. During ripening, avocado reduced its elastic modulus (from 2.29 +/- 0.75 to 0.16 +/- 0.08 MPa), became softer and became more viscoelastic, which was well described from zero and first-order kinetic models. These changes increased ultrasound attenuation, decreasing the maximum amplitude of the ultrasonic signal (from 336.6 to 55.4 V/m), while the ultrasonic velocity remained constant, between 320.1 +/- 6.9 and

316.4 +/- 82.6 m/s. Thereby, the maximum ultrasonic amplitude, which adequately correlated with textural parameters (r(avg) = 0.85), could be used to assess the post-harvest ripening on avocado slices.

Record 746/1262: WOS:000604391800012

Source: ARQUIVO BRASILEIRO DE MEDICINA VETERINARIA E ZOOTECNIA | 72 (5): 1891-1900 SEP-OCT 2020

Title: Effect of supplementation with avocado oil (***Persea americana*** Mill) on body surface temperature of horses before and after exercise on treadmill

Author(s): Carvalho, MG | Akutagawa, TYM | Nitta, TY | Mazzante, NMG | Silva, JRB | Santarosa, BP | Rodrigues, CA | Hussni, CA | Alves, ALG | Watanabe, MJ

Date: SEP-OCT 2020

Author keywords: avocado | lipid metabolism | supplement | thermography | thermoregulation

Keywords plus: EYE TEMPERATURE | PERFORMANCE | EQUINE | NUTRITION | DIET | FAT

Publication year: 2020

Volume: 72

Abstract:

Eight equines were distributed in a randomized crossover design, one control group (CG) without supplementation and another group supplemented (SG) with avocado oil for a period of six weeks. At the end of the sixth week, the animals were submitted to standard exercise test (SET) and after seven days to the low intensity test (LIT). After the first cycle, there was a 30-day washout rest period to exchange groups for the second cycle, which followed the protocol of the first one. Thermoregulation was evaluated based on rectal temperature and body surface temperature of 15 regions of interest obtained by thermography. Rectal temperature and thermographic images were obtained before, one minute and 15 minutes after exercise. There was no difference between the CG and SG at any time. The results obtained in this study revealed that the supplementation of 5% of dry matter with avocado oil for six and seven weeks did not influence the thermoregulation based on the body surface temperature of the horses submitted to SET and LIT, respectively.

Record 796/1262: WOS:000560406800014

Source: SCIENTIFIC REPORTS | 10 (1): - MAR 27 2020

Title: Avocado-derived polyols for use as novel co-surfactants in low energy self-emulsifying microemulsions

Author(s): Ahmed, N | Kermanshahi, B | Ghazani, SM | Tait, K | Tcheng, M | Roma, A | Callender, SP | Smith, RW | Tam, W | Wettig, SD | Rogers, MA | Marangoni, AG | Spagnuolo, PA

Date: MAR 27 2020

Author keywords:

Keywords plus: DRUG-DELIVERY SYSTEMS | NANOEMULSIONS | MITOCHONDRIA | ENHANCEMENT | MECHANISMS | RELEASE | IMPACT | GLYCOL

Publication year: 2020

Volume: 10

Abstract:

Avocado (***Persea americana*** Mill.; Lauraceae) seed-derived polyhydroxylated fatty alcohols (PFAs) or polyols (i.e., avocadene and avocadyne) are metabolic modulators that selectively induce apoptosis of leukemia stem cells and reverse pathologies associated with diet-induced obesity. Delivery systems containing avocado polyols have not been described. Herein, natural surface active properties of these polyols are characterized and incorporated into self-emulsifying drug delivery systems (SEDDS) that rely on molecular self-assembly to form fine, transparent, oil-in-water (O/W) microemulsions as small as 20 nanometers in diameter. Mechanistically, a 1:1 molar ratio of avocadene and avocadyne (i.e., avocatin B or AVO was shown to be a eutectic mixture which can be employed as a novel, bioactive, co-surfactant that significantly reduces droplet size of medium-chain triglyceride O/W emulsions stabilized with polysorbate 80. *In vitro* cytotoxicity of avocado polyol-SEDDS in acute myeloid leukemia cell lines indicated significant increases in potency and bioactivity compared to conventional cell culture delivery systems. A pilot pharmacokinetic evaluation of AVO SEDDS in C57BL/6J mice revealed appreciable accumulation in whole blood and biodistribution in key target tissues. Lastly, incorporation of AVO in SEDDS significantly improved encapsulation of the poorly water-soluble drugs naproxen and curcumin.

Record 850/1262: WOS:000509450900001

Source: PHYTOTHERAPY RESEARCH | 34 (6): 1282-1290 JUN 2020

Title: Ginger and avocado as nutraceuticals for obesity and its comorbidities

Author(s): Tramontin, ND | Luciano, TF | Marques, SD | de Souza, CT | Muller, AP

Date: JUN 2020

Author keywords: diabetes treatment | inflammation | obesity | oxidative stress | phytotherapeutic approach | unhealthy diet

Keywords plus: HIGH-FAT DIET | PIGMENT OPTICAL-DENSITY | OXIDATIVE STRESS | ZINGIBER-OFFICINALE | COGNITIVE FUNCTION | INSULIN-RESISTANCE | PERSEA-AMERICANA | BETA-SITOSTEROL | ADIPOSE-TISSUE | UP-REGULATION

Publication year: 2020

Volume: 34

Abstract:

Obesity is a worldwide epidemic and is one of the factors involved in the etiology of type 2 diabetes mellitus. Obesity induces low-grade inflammation and oxidative stress. The treatment for obesity involves changes in diet, physical activity, and even medication and surgery. Currently, the use of nutraceutical compounds is associated with health benefits. Ginger and avocado are used for many people all around the world; however, its effect as a nutraceutical compound is less known by the general population. For this reason, we searched information of the literature to point its effects on distinct mechanisms of defense against the obesity its comorbidities. The present review aimed showing that these nutraceuticals may be useful in obesity treatment. Reports have shown that ginger and avocado induce antioxidant and anti-inflammatory effects by improving enzymatic activity and modulating obesity-related impairments in the anti-inflammatory system in different tissues, without side effects. Furthermore, ginger and avocado were found to be effective in reversing the harmful effects of obesity on blood lipids. In conclusion, on the basis of the positive effects of ginger and avocado in *in vitro*, animal, and human studies, these nutraceuticals may be useful in obesity treatment.

Record 859/1262: WOS:000569744200006

Source: FOOD AND BIOPRODUCTS PROCESSING | 123: 238-250 SEP 2020

Title: Separation of bioactive compounds from epicarp of 'Hass' avocado fruit through aqueous two-phase systems

Author(s): Jiménez-Velázquez, P | Valle-Guadarrama, S | Alia-Tejacal, I | Salinas-Moreno, Y | García-Cruz, L | Pérez-López, A | Guerra-Ramírez, D

Date: SEP 2020

Author keywords: ***Persea americana*** Mill. | Aqueous two-phase systems | Bioactive compounds | Epicarp

Keywords plus: LIQUID-LIQUID EQUILIBRIUM | MILL WASTE-WATER | POLY ETHYLENE-GLYCOL | SALTING-OUT | EMERGING TECHNOLOGIES | POLY(ETHYLENE GLYCOL) | ANTIOXIDANT ACTIVITY | POLYETHYLENE-GLYCOL | BY-PRODUCTS | EXTRACTION

Publication year: 2020

Volume: 123

Abstract:

The industrialization of 'Hass' avocado fruit generates residues such as the epicarp that contains bioactive compounds that can be recovered. The objective of the work was to evaluate the extraction of bioactive compounds from 'Hass' avocado epicarp through aqueous two-phase systems (ATPS) in order to increase the added value of the fruit. ATPS based on polyethylene glycol 4000 (PEG4000) with sodium citrate (Na(3)Cit) or magnesium sulphate (MgSO4) were evaluated, both incorporated with lyophilised epicarp of fruit at consumption maturity. Binodal phase diagrams were developed and the salting-out capacity of each system was assessed, which allowed explaining the systems separation behaviour. The extraction of compounds was equivalent to 89.9% in relation to a process based on methanol. Systems with 24.9-145% Na(3)Cit-PEG4000 and 12.2-155% MgSO4-PEG4000 were able to recover more than 82% of soluble phenols, flavonoids, and condensable tannins, from avocado peel, with high antioxidant activity. The epicarp of 'Hass' avocado fruit had low concentration of anthocyanins. ATPS showed utility in concentrating compounds by a non-thermal procedure.

Record 925/1262: WOS:000546550700017

Source: SCIENTIFIC REPORTS | 10 (1): - JUL 1 2020

Title: Avocado (***Persea americana***) pulp improves cardiovascular and autonomic recovery following submaximal running: a crossover, randomized, double-blind and placebo-controlled trial

Author(s): Sousa, FH | Valenti, VE | Pereira, LC | Bueno, RR | Prates, S | Akimoto, AN | Kaviani, M | Garner, DM | Amaral, JAT | de Abreu, LC

Date: JUL 1 2020

Author keywords:

Keywords plus: HEART-RATE RECOVERY | PHYSICAL-ACTIVITY QUESTIONNAIRE | OXIDATIVE STRESS | RATE-VARIABILITY | BLOOD-PRESSURE | EXERCISE | REFLEX | CONDUCTANCE | PREDICTOR | MORTALITY

Publication year: 2020

Volume: 10

Abstract:

Previous studies have demonstrated that regular avocado consumption presents advantageous effects on cardiovascular system. However, little attention has been paid to the use of avocado as a dietary supplement, in particular, for individuals involved in physical exercise training. Therefore, this study

aims to evaluate the effect of acute avocado pulp intake on cardiovascular and autonomic recovery subsequent to moderate exercise. Using a crossover, randomized, double-blind and placebo-controlled trial design, 16 healthy female adults underwent two protocols: Avocado pulp (600 mg in capsule) and placebo (600 mg starch in capsule). After the ingestion of Avocado pulp or placebo, the subjects were seated for 60 min at rest, followed by running on a treadmill at a submaximal level and then remained seated for 60 min during recovery from the exercise. Heart rate (HR), heart rate variability (HRV) [rMSSD, SD1, HF (ms(2))] and skin conductance were evaluated before and during exercise, as well as during recovery. HR, systolic blood pressure, HRV and skin conductance recovered faster when subjects were given avocado pulp prior to exercise. In conclusion, avocado pulp improved cardiovascular and autonomic recovery after exercise, suggesting a reduced risk of cardiovascular events after exertion. The current results support the beneficial effects of ingestion of avocado prior to submaximal treadmill running.

Record 1117/1262: WOS:000559122000003

Source: EVIDENCE-BASED COMPLEMENTARY AND ALTERNATIVE MEDICINE | 2020: - JUL 25 2020

Title: The Ethanol Extract of Avocado (***Persea americana*** Mill. (Lauraceae)) Seeds Successfully Induces Implant Regression and Restores Ovarian Dynamic in a Rat Model of EndometRíosis

Author(s): Essono, SM | Mvondo, MA | Ngadjui, E | Nguimatio, FXK | Watcho, P

Date: JUL 25 2020

Author keywords:

Keywords plus: OXIDATIVE STRESS | EPITHELIAL-CELLS | RECEPTOR | CANCER | PROLIFERATION | RESVERATROL | EXPRESSION | APOPTOSIS | FECUNDITY | TISSUE

Publication year: 2020

Volume: 2020

Abstract:

EndometRíosis is an estrogen-dependent disease with conventional therapies which do not have desirable effectiveness and possess many side effects. Scientific evidences suggest that medicinal plants with antioxidant, anti-inflammatory, and/or antiproliferative properties are potential alternatives for the treatment of endometRíosis. The ethanol extract of ***Persea americana*** Mill. (Lauraceae) seeds was found exhibiting antiproliferative properties *in vitro* and *in vivo*. This study therefore is aimed at investigating the effects of such an extract on an experimental model of endometRíosis. EndometRíosis was induced by grafting uterine fragments onto the peritoneum of female Wistar rats. After checking the

success of the transplantation surgery, animals with endometRíosis were orally treated with the ethanol extract of ***P. americana*** seeds at the doses of 12.5, 25, and 50 mg/kg. The positive control was treated with letrozole (10 mg/kg) while the negative control received the vehicle. Treatments lasted 7 days and animals were sacrificed thereafter. Endometrial implant volume was determined. Estradiol and progesterone levels were measured in serum samples and endometRíosis lesions. The oxidative status of endometRíosis lesions was evaluated. Histological analysis of endometRíosis lesions, uterus, and ovaries was also performed. Results showed that the ethanol extract of ***P. americana*** seeds decreased endometrial implant volume ($p<0.001$) and serum levels of estradiol and progesterone ($p<0.01$). The levels of estradiol also decreased in endometRíosis lesions at doses of 12.5 and 50 mg/kg ($p<0.001$). Both malondialdehyde and glutathione levels increased in endometRíosis lesions ($p<0.001$). The ectopic endometrium height decreased and the number of antral follicles and corpora lutea ($p<0.05$) increased while that of luteinized unruptured follicles decreased ($p<0.001$). In conclusion, the ethanol extract of ***P. americana*** seeds displayed an antiendometRíosis effect suggesting that it could be a potential alternative for the treatment of endometRíosis.

Record 1119/1262: WOS:000508936000014

Source: JOURNAL OF INTEGRATIVE AGRICULTURE | 19 (3): 748-758 MAR 2020

Title: Bacterial extracts and bioformulates as a promising control of fruit body rot and root rot in avocado cv. Hass

Author(s): Granada, D | López-Lujan, L | Ramírez-Restrepo, S | Morales, J | Peláez-Jaramillo, C | Andrade, G | Bedoya-Pérez, JC

Date: MAR 2020

Author keywords: Colletotrichum gloeosporioides | Phytophthora cinnamomi | Serratia sp. | antagonistic microbes | secondary metabolites | biofungicide

Keywords plus: PERSEA-AMERICANA-MILL. | ANTHRACNOSE DISEASE | MANAGEMENT | RESISTANCE | EFFICACY | AGENTS | WILT | OIL

Publication year: 2020

Volume: 19

Abstract:

At least 20-40% of annual losses of avocado crops are caused by pathogenic fungi. The chemical treatments of these diseases are inefficient, cause environmental pollution and are increasingly restricted by international laws. This work aimed to assess the biocontrol capacity of a bacterial extract to protect avocado fruits and plants from pathogen infections. Extracts from the bacterial isolate Serratia

sp. ARP5.1 were obtained from liquid fermentations in a biorreactor. A body rot postharvest infection model with ***Colletotrichum gloeosporioides*** on fruits was developed. Moreover, packaging conditions were simulated using the bacterial extract and the commercial fungicide prochloraz as a positive control. Additionally, seedlings infections with ***Phytophthora cinnamomi*** were performed on two types of avocado (West Indian race and cv. Hass). The Area Under Disease Progress Curve (AUDPC) was recorded using the bacterial extract and a commercial product with fosetyl-aluminium as treatments. The bacterial extract significantly reduced infections by ***C. gloeosporioides*** on injured avocado fruits at 31.1 mu g mL(-1). Intact fruits were also protected against body rot infections at the same concentration and showed no significant differences with the commercial fungicide. On the other hand, AUDPC in the seedlings was significantly reduced with the extract treatment at 3 mu g mL(-1) compared to the control. However, a possible phytotoxicity effect of the extract was evidenced in the seedlings and confirmed by pathogen recovery and tests on ***Raphanus sativus*** seedlings. Finally, formulations of the extracts (emulsion and emulsifiable concentrate) were prepared, and bioactive stability was assessed for 8 wk. The emulsion formulates demonstrated very stable bioactivity against ***P. cinnamomi***. The extract and the emulsion formulate showed promising results for the control of avocado pathogens. New bioproducts based on this type of active principles could be developed for the benefit of avocado industry.

Record 1151/1262: WOS:000504350600007

Source: COLLOIDS AND SURFACES A-PHYSICOCHEMICAL AND ENGINEERING ASPECTS | 586: - FEB 5 2020

Title: Production and technological characteristics of avocado oil emulsions stabilized with cellulose nanofibrils isolated from agroindustrial residues

Author(s): Franco, TS | Rodríguez, DCM | Soto, MFJ | Amezcua, RMJ | Urquiza, MR | Mijares, EM | de Muniz, GIB

Date: FEB 5 2020

Author keywords: Pickering emulsion | CNF | Nanocellulose | Bactris gasipaes | Pupunha | Agroindustrial residues

Keywords plus: IN-WATER EMULSIONS | FOOD-GRADE PARTICLES | PICKERING EMULSIONS | NATURAL EMULSIFIERS | OXIDATIVE STABILITY | BACTERIAL CELLULOSE | PHYSICAL-PROPERTIES | PERSEA-AMERICANA | BEET PECTIN | EXTRACTION

Publication year: 2020

Volume: 586

Abstract:

The present work provided the valorization of agroindustrial residues from the palm peach (***Bactris gasipaes***) industry to produce cellulose nanofibrils (CNFs) and considered their application as a stabilizer agent for avocado oil emulsions. The treatments applied generated CNFs bundles with high aspect ratio, stability and mobility of (-) 19.82 +/- 7.7 (mu/s)/(V/cm) at water suspensions; crystallinity index of 31.5 % and superficial functional groups (FT-IR spectra) that remarked them as able to interact with polar and non-polar molecules. The little amount of 1.0 % of CNF was able to stabilize emulsions with high oil content (50 %) that remained steady after 30 days of storage at different temperatures, probably by CNF's Pickering-mechanism. Emulsions with sorbitan monostearate (3.5 %) were also produced and the replacement or interaction of this agent with CNF (0, 50 and 1.0 %) was evaluated by creaming behavior, stability index and morphological characterization. It was not observed a synergistic effect between the components; emulsions that contained only CNF (CNF 100) showed superior characteristics, with no creaming or coalescence at 02 and 25 degrees C for 30 days; no coalescence after thermal treatments (02 and 80 degrees C) associated with extreme pH variations (2 and 11) and lower droplets size. Besides address a practical application for nanocelluloses obtained from discarded lignocellulosic material, the results suggests the possibility of produce a potentially edible emulsion from an oil with high oleic acid content and bioactive molecules without the addition of any surfactant or other chemical additive, that could be used for new food, cosmetic or pharmaceutical applications.

Record 1158/1262: WOS:000594218600001

Source: APPLIED SCIENCES-BASEL | 10 (22): - NOV 2020

Title: Avocado-Derived Biomass as a Source of Bioenergy and Bioproducts

Author(s): García-Vargas, MC | Contreras, MD | Castro, E

Date: NOV 2020

Author keywords: avocado biomass | bioenergy | bioproducts | biorefinery | natural antioxidants | valorization

Keywords plus: BY-PRODUCTS | BIOACTIVE COMPOUNDS | CHEMICAL-COMPOSITION | ANTIOXIDANT ACTIVITY | POLAR COMPOUNDS | SEED | OIL | EXTRACTION | BIOREFINERY | FRUIT

Publication year: 2020

Volume: 10

Abstract:

This review gives new insights into the valorization of avocado waste. It can help researchers and the industry involved in the processing of avocado fruit to look for integrated approaches within a

biorefinery context and to move towards a circular bioeconomy. The avocado (***Persea americana*** Mill.) is a tree native to Mexico and Guatemala. Avocado consumption, fresh or in the form of processed products, is growing everywhere and it has caused a large number of countries to invest heavily in avocado production. The industrialization of avocado gives as a result a huge amount of waste, not only the peel and stone but also that waste generated by the pruning practices and oil extraction. These biomasses could be converted into raw materials to obtain different types of co-products, but this implies changes in the use of these resources, the design of efficient production systems, and integration to take full advantage of them, e.g., by developing biorefinery models. Therefore, this review firstly gives a snapshot of those residues generated in the avocado industry and provides their chemical composition. Secondly, this review presents updated information about the valorization ways of avocado-derived biomass to obtain bioenergy, biofuels, and other marketable products (starch, protein, phenolic compounds, and biosorbents, among others) using a single process or integrated processes within a biorefinery context. Green technologies to obtain these products are also covered, e.g., based on the application of microwaves, ultrasound, supercritical fluids, etc. As a conclusion, there is a variety of ways to valorize avocado waste in single processes, but it would be promising to develop biorefinery schemes. This would enable the avocado sector to move towards the zero-waste principle.

Record 1239/1262: WOS:000515412700044

Source: JOURNAL OF ETHNOPHARMACOLOGY | 249: - MAR 1 2020

Title: Plant therapy in the Peruvian Amazon (Loreto) in case of infectious diseases and its antimicrobial evaluation

Author(s): Roumy, V | Macedo, JCR | Bonneau, N | Samaillie, J | Azaroual, N | Encinas, LA | Riviere, C | Hennebelle, T | Sahpaz, S | Antherieu, S | Pincon, C | Neut, C | Siah, A | Gutiérrez-Choquevilca, AL | Ruiz, L

Date: MAR 1 2020

Author keywords: Antimicrobial activity | Loreto | Peru | Medicinal plant | Traditional use

Keywords plus: MEDICINAL-PLANTS | IN-VITRO | PRODUCTS | ANTIBACTERIAL | CONSTITUENTS | NEOLIGNANS | FLAVONOIDS | ALKALOIDS | MESTIZO | VIROLA

Publication year: 2020

Volume: 249

Abstract:

Ethnopharmacological relevance: The plant species reported here are used in contemporary phytotherapies by native and neo-urban societies from the Iquitenian surroundings (district of Loreto,

Peruvian Amazon) for ailments related to microbial infections. Inhabitants of various ethnic origins were interviewed, and 81 selected extracts were evaluated for their antimicrobial properties against a panel of 36 sensitive and multi-resistant bacteria or yeast. Medicinal plant researches in the Peruvian Amazon are now significant, but none of them has focused on an exhaustive listing of identified species tested on so many microbes with standardized experiments (to obtain MIC value). Aim of the study: The aim of the study was to inventory the plants used against infections in the Loreto, an Amazonian region of Peru. It led to the new identification of secondary metabolites in two plant species. Materials and methods: Ethnographic survey was carried out using "participant-observation" methodology and focus on bioprospecting of antimicrobial remedies. Selected plant extracts and antimicrobial drugs were tested *in vitro* with agar dilution method on 35 bacteria strains and 1 yeast to evaluate their Minimal Inhibitory Concentration (MIC). Microdilution methods using 96-well microtiter plates were used for the determination of MIC from isolated compounds, and cytotoxicity in HepG2 cells from some selected extracts were also evaluated. Activity-guided isolation and identification of compounds were performed by various chromatographic methods and structural elucidations were established using HRMS and NMR spectroscopy. Results: this study outlined antimicrobial activities of 59 plant species from 33 families (72 single plant extracts and 2 fermented preparations), 7 mixtures, and one insect nest extract against 36 microorganisms. Of the 59 species analysed, 12 plants showed relevant antibacterial activity with MIC <= 0.15 mg/mL for one or several of the 36 micro-organisms (***Aspidosperma excelsum, Brosimum acutifolium, Copaifera paupers, Erythrina amazonica, Hura crepitans, Myrciaria dubia, Ocotea aciphylla, Persea americana, Spondias mombin, Swartzia polyphylla, Virola pavonis, Vismia macrophylla***). Examination by bioautography of ***E. amazonica***, ***M. dubia*** and ***O. aciphylla*** extracts allowed the phytochemical characterization of antimicrobial fractions and compounds. Conclusion: this study suggested an a posteriori correlation of the plant extract antimicrobial activity with the chemosensory cues of the drugs and attested that those chemosensory cues may be correlated with the presence of antimicrobial compounds (alkaloids, tannins, saponosids, essential oil, oleoresin). It also led to the first isolation and identification of three secondary metabolites from ***E. amazonica*** and ***M. dubia***.

V. TECNOLOGÍA ASOCIADA

MÉTODO DE CONSERVACIÓN *in vitro* DE EMBRIONES INMADUROS DE ***Persea americana***

N° DE PUBLICACIÓN	CN111543319
FECHA DE PUBLICACIÓN	18/08/2020
INVENTORES	WANG JIASHUI; LI YANXIA; LIU YUANZHENG; MA WEIHONG; ZANG
SOLICITANTE	HAIKOU EXPERIMENTAL STATION CATAS

RESUMEN

Esta invención proporciona un método para salvar embriones inmaduros de ***Persea americana***. El método comprende en recolectar frutos híbridos de ***Persea americana*** inmaduros y extraer embriones cigóticos inmaduros de los frutos desinfectados; después, según la madurez de los embriones cigóticos, seleccionar diferentes medios de cultivo para impulsar la madurez de los embriones cigóticos; luego de la germinación de embriones de ***Persea americana***, realizando crecimiento bajo la condición de iluminación para obtener plantas normales. De acuerdo con una técnica, los embriones cigóticos en diferentes etapas de desarrollo son sometidos a inducción de madurez en condiciones *in vitro*, después de la madurez, se induce la germinación de los embriones y, ya sanos, se forman las plantas.

FÓRMULA PARA MASAJE CORPORAL RELAXANTE

N° DE PUBLICACIÓN	PH22018001632
FECHA DE PUBLICACIÓN	24/04/2020
INVENTOR(A)	PEDREGOSA EVA CERMINO
SOLICITANTE	PEDREGOSA EVA CERMINO

RESUMEN

La formulación del relajante de masaje corporal se compone de extractos de hojas de ***Vitex negundo***, ***Persea americana***, ***Origanum vulgare*** y ***Ehretia microphylla.*** Estas contienen diferentes compuestos químicos y propiedades que producen efecto relajante en el cuerpo humano. La sustancia de ***Vitex negundo*** combinada con ***Persea americana***, ***Ehretia mkrophylta***, aceite esencial de menta como aromaterapia, libera propiedades relajantes muy potentes que son analgésicos naturales, calmantes de nervios, dolores musculares, dolores de espalda, pélvicos y esqueléticos. Tiene fIavonoides que protegen al cuerpo de dolencias generativas como artritis, osteoporosis o gota, como los mejores ejemplos. La formulación tiene propiedades antioxidantes como la vitamina A, C y E que nutren la piel. Además, normaliza la condición corporal, promueve la circulación sanguínea y alivia el dolor corporal, haciéndolo relajado, energizado, hidratado, refrescado y nutrido.

UN EXTRACTO DE PERSEA

N° DE PUBLICACIÓN	WO2020260376
FECHA DE PUBLICACIÓN	30/12/2020
INVENTORES	SIEMS KARSTEN [DE]; DALHOFF CHRISTIAN [DE]; FEUSSI-TALA MICHEL [DE]; UHLENBROCK LUKAS [DE]; STRUBE JOCHEN [DE]
SOLICITANTE	ANALYTICON DISCOVERY GMBH [DE]

RESUMEN

Se sugiere un extracto de Persea, en particular ***Persea americana*** (aguacate), que comprende al menos 90 por ciento en peso de polioles de aguacate y preferiblemente al menos 95 por ciento en peso de aguacateno, obtenible u obtenido de acuerdo con las siguientes etapas: (a) proporcionar una fuente de Persea; (b) someter dicha fuente de Persea a una etapa de extracción utilizando disolventes orgánicos para obtener un primer extracto; (c) someter dicho primer extracto a saponificación para obtener un segundo extracto; (d) añadir una fuente de calcio a dicho segundo extracto para precipitar los jabones de calcio; (e) someter el producto del paso (d) a un paso de separación para obtener un tercer extracto y dichas sales de calcio precipitadas; y opcionalmente (f) someter dicho tercer extracto a purificación.

ACTIVADOR MUSCULAR

N° DE PUBLICACIÓN	JP2019026640
FECHA DE PUBLICACIÓN	21/02/2019
INVENTORES	HAYASHI KENJIRO; LEE DAE-YEONG
SOLICITANTE	NIPPON SHINYAKU CO LTD

RESUMEN

La presente invención se refiere a un activador muscular que contiene como ingredientes activos los extractos de ***Citrus bergamia***, ***Eryngium foetidum***, ***Artemisia morrisonensis***, ***Pseudostellaria heterophylla***, ***Annona muricata***, ***Daemonorops***, ***Persea americana***, ***Carthamus tinctorius***, ***Zea mays***, ***Tetragonia tetragonioides,*** ***Fagopyrum esculentum***, ***Aralia cordata*** y ***Trichosanthes kirilowii***. El activador muscular, según la presente invención, tiene acción activadora de mioblastos o acción activadora de p70S6K, acción activadora de rpS6K y, en particular, se espera que sea eficaz como potenciador muscular, agente profiláctico contra la caries muscular y agente mejorador de la piel.

PROCESO DE UTILIZACIÓN DE SEMILLAS DE AGUACATE (***Persea Americana***) COMO COLORANTE TEXTIL

N° DE PUBLICACIÓN	PH22017000903
FECHA DE PUBLICACIÓN	28/11/2018
INVENTOR	PASCUAL REBECCA P
SOLICITANTE	ESTADO SAMAR UNIV

RESUMEN

El proceso de utilizar semillas de aguacate (***Persea Americana***) como tinte textil, comprende las siguientes etapas: hervir una pluralidad de semillas de aguacate en agua durante una hora; filtrar dichas semillas de aguacate hervidas para obtener el extracto; calentar este extracto filtrado a ebullición, a una temperatura óptima requerida para el tejido a teñir; sumergir dicho textil en el extracto hirviendo durante 3 minutos; retirar el textil teñido de dicho extracto hirviente; luego lavar el textil teñido usando detergente aniónico; y finalmente, secar el textil teñido.

MÉTODO DE CULTIVO DE *Antheraea assamensis* A TRAVÉS DE HOJAS DE *Persea americana*

N° DE PUBLICACIÓN	CN111528182
FECHA DE PUBLICACIÓN	14/08/2020
INVENTORES	ZHONG JIAN; XU JIANCHU; ZHANG HAIYA; GUO JIANWEI; LUO ZEWEN
SOLICITANTE	KUNMING INST BOTÁNICA CAS; HONGHE SHANDI FUTURE TECH CO LTD

RESUMEN

La invención se refiere a un método para la crianza de ***Antheraea assamensis,*** a través de hojas de ***Persea americana*** que pertenece al campo técnico de la cría de ***Antheraea assamensis***. De acuerdo con el método descrito por la invención, mediante la selección deliberada de los tipos de árboles de alimentación de cultivo y la selección de los tipos de insectos criados, a saber, con la cría de ***Atheraea assamensis,*** a través de hojas de ***Persea americana***, se puede obtener dos tipos de productos que incluyen frutos de ***Persea americana*** y al mismo tiempo, seda de ***Antheraea assamensis***, ambos de alto valor. Así, los árboles de ***Persea americana*** normalmente pueden dar frutos, como sus hojas que también se pueden utilizar para la cría de gusanos de seda.

MEDICAMENTO PARA EL TRATAMIENTO DE LA DIABETES Y MÉTODO DE PREPARACIÓN DEL MISMO

Nº DE PUBLICACIÓN	CN106421399
FECHA DE PUBLICACIÓN	22/02/2017
INVENTOR	MO ZEYONG
SOLICITANTE	MO ZEYONG

RESUMEN

La invención describe un medicamento para tratar la diabetes y un método de preparación. El medicamento se prepara a partir, en peso, de 18-20 partes de nepenthes, 10-14 partes de ñame, 8-12 partes de ***Anoectochilus roxburghii***, 8-12 partes de espirulina, 7-9 partes de balausstina, 7-9 partes de ***Persea americana*** molino, 7-9 partes de astrágalo, 5-7 partes de malva verticillata y 5-7 partes de ***Echinopanax elatus*** nakai. El método de preparación comprende los pasos de triturar los materiales en polvo, tamizar el polvo con un tamiz de malla 40 a 80 y luego mezclar. El medicamento tiene un buen efecto terapéutico sobre la diabetes tipo I y la diabetes tipo II, asimismo, tiene una eficacia precisa, no tiene efectos secundaRíos ni tóxicos, es seguro y confiable, y el método de preparación es simple y fácil de usar. En 280 casos de tratamiento clínico, la tasa efectiva total fue de hasta el 90%.

UN PROCESO DE PREPARACIÓN DE UNA CREMA HERBARIA

N° DE PUBLICACIÓN	PH22016000704
FECHA DE PUBLICACIÓN	25/10/2017
INVENTOR	YANGA RUTH O
SOLICITANTE	YANGA RUTH O

RESUMEN

El presente modelo de utilidad es el proceso de preparación de una crema tópica de base natural, que comprende 84,75% de crema base y 15,25% de extractos . Estos extractos de aceite mezclados consisten en una mezcla de 73 por ciento de extractos de aceite de las hojas de guayaba (***Psidium guajava***), orégano (***Origanum vulgare***), ***Moringa oleifera***, Akapulko (***Cassia alata*** L), cúrcuma, Cayena y aguacate (***Persea Americana***), 6 por ciento Aloe vera, 5 piezas de aceite EMU y 16 piezas de aceites esenciales patentados. Dicha crema desea ayudar a los pacientes que padecen eczema y psoriasis.

JABÓN LÍQUIDO Y JABÓN DE SEMILLAS DE ***Persea americana***

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RESUMEN

La invención describe una nueva aplicación de semillas de ***Persea americana***. El jabón de semillas de ***Persea americana*** se prepara con el siguiente método: agregando un extracto de semillas y un extracto de hojas de ***Persea americana,*** y saponina de té al jabón líquido de semillas de ***Persea americana***; mezclando uniformemente; y realizando un tratamiento de curado para obtener el jabón de semillas de ***Persea americana*** . El jabón de semillas proporcionado por la invención, tiene una excelente propiedad de formación de espuma y es bacteRíostático, es natural y no contamina, puede eliminarse suavemente, no es irritante, permite que la piel se hidrate, ya que es suave, fresco y confortable después del baño. Este método de preparación es simple y fácil de implementar pues tiene muy buenas perspectivas de aplicación.

VI. ACTUALIDAD

GESTIÓN
ECONOMÍA

Minagri proyecta que exportaciones de palta peruana alcanzarían los US$ 770 millones este año

El volumen de las exportaciones acumuladas de enero a julio es superior al alcanzado a lo largo de todo el año pasado.

La palta Hass peruana llegó este año a Corea del Sur y Tailandia. (Foto: Senasa)

Redacción Gestión

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Las exportaciones de paltas sumaron US$ 636 millones entre enero y julio, y cerrarían en unos US$ 770 millones, estimó el Ministerio de Agricultura y Riego (Minagri).

Durante los siete primeros meses del año, el volumen de exportación ascendió a 337,935 toneladas de palta, lo que representó un aumento de 22% en relación con lo registrado en el 2019. El Minagri también resaltó que este volumen es superior al alcanzado a lo largo de todo el año pasado (312,539 toneladas).

Este crecimiento responde fundamentalmente al buen desempeño de algunos departamentos de la costa, como La Libertad (+30%), Lambayeque (+51%) y Ancash (+49%).

Asimismo, en las zonas de la sierra resaltan Ayacucho, cuyos volúmenes de ventas en toneladas se ha multiplicado por más de cinco (+405%), Cusco (+305%), Apurímac (+154%) y Huancavelica (+59%).

Por otro lado, los principales mercados internacionales de destino de esta fruta son Holanda, España, Chile, Estados Unidos e Inglaterra, los que explican el 83% de las exportaciones totales de palta al mundo.
Es preciso recordar que el mercado estadounidense suele demandar palta peruana a partir de junio, pues antes se abastece íntegramente de la producción de California y de México. A ello se suma la recuperación sostenida que registran indicadores de consumo frente a los efectos del coronavirus para proyectar un buen cierre de año, con cifras exportadas que podrían superar los US$ 770 millones.

Finalmente, el Minagri indicó que el Servicio Nacional de Sanidad Agraria (Senasa) ha conseguido este año el acceso de palta hass a los mercados de Corea del Sur y Tailandia.

Fuente: https://gestion.pe/economia/minagri-proyecta-que-exportaciones-de-palta-peruana-alcanzarian-los-us-770-millones-este-ano-noticia/

VII. BIBLIOGRAFÍA

1. Rosero JC, Cruz S, Osorio C , Hurtado N. Analysis of Phenolic Composition of By products (Seeds and Peels) of Avocado (***Persea americana*** Mill.) Cultivated in Colombia. Molecules. 2019, 24(17) . Url: https://www.mdpi.com/1420-3049/24/17/3209/htm
2. Shafer, A .; Wolf, JBW; Alves, PC; Bergstrom, L .; Bruford, MW; Brannstrom, I .; Colling, G .; Dalén, L .; De Meester, L .; Ekblom, R .; et al. Genómica y la traducción desafiante a la práctica de la conservación. Tendencias Ecol. Evol. 2015 , 30 , 78–87
3. Perea, M .; Matallama, L .; Tirado, A. Biotecnología Aplicada a los Mejoramientos de Cultivos de Frutas Tropicales ; Universidad Nacional de Colombia: Bogotá, Colombia, 2010; ISBN 9789587195361
4. Monografía de cultivos. Aguacate. Subsecretaria de Fomento de Agronegocios, 2011, pp. 1-10
5. Rodríguez, A. N. y Sánchez, P. P. Especies de frutales cultivadas en Cuba en la Agricultura Urbana. 3ra Edición, La Habana 2005
6. Pérez Álvarez, Sandra; Ávila Quezada, Graciela; Coto Arbelo, Orlando EL AGUACATERO (***Persea americana*** MIill) Cultivos Tropicales, vol. 36, núm. 2, abril-junio, 2015, pp. 111-123. Url: https://www.redalyc.org/pdf/1932/193239249016.pdf
7. Búsqueda de ***Persea americana*** en Espacenet.
8. Búsqueda en base de datos Clarivate web of sciences sobre ***Persea americana***
9. Búsqueda en base de datos Derwent Innovation sobre ***Persea americana***
10. Romero Fernández, C. Manejo post cosecha de palta Hass (***Persea americana***) para la exportación. Huancayo: Universidad Nacional del Centro del Perú; 2015. Url: http://repositorio.uncp.edu.pe/bitstream/handle/UNCP/1300/INFORME%20DE%20EXPERIENCIA%20PROFESIONAL.pdf?sequence=1&isAllowed=y
11. ***Persea americana***. Plants of the world online Powo Science. [visitado el 20.02.2020]. Url: http://powo.science.kew.org/taxon/urn:lsid:ipni.org:names:325643-2#source-KBD

Imagen: (***Persea americana*** Mill) Oil

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