Universidad de Alcalá

Comunidad de Madrid
Dirección General de Investigación e Innovación Tecnológica
CONSEJERÍA DE CIENCIA, UNIVERSIDADES E INNOVACIÓN

CATALOGUE

Agro-food

Scientific and Technological Offer

Agro-food

- Procedure for obtaining peptides with antioxidant and antihypertensive properties from olive seds
- Via led-lighting automated control and supervision system for pharmacautical manufacturing environments
- Sensograph: fast and cheap method for the sensory food positioning
- Novel method for the detection of adulteration of saffron with gardenia
- Device for taking pictures of the treetops

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PROCEDURE FOR OBTAINING PEPTIDES WITH ANTIOXIDANT AND ANTIHYPERTENSIVE PROPERTIES FROM OLIVE SEEDS

Patent
ES2487115 y
ES2489440

Code

AGR_UAH_09

Application areas

- Biological Sciences
- Agriculture and Marine Resources
- Agrofood Industry

Type of Collaboration

- Technical cooperation
- Commercial agreement with technical assistance
- License agreement

Main Researchers

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ABSTRACT

The proposed chemical procedure allows obtaining a peptide extract with antioxidant and antihypertensive capacity from olive seeds.
The procedure requires the prior extraction of proteins following a previously optimized method, and enzymatic hydrolysis of the extracted proteins. The extraction of the proteins contained in the olive pit is performed using a Tris-HCl buffer at pH 7.5 containing sodium dodecyl sulfate and dithiothreitol. Then, the extracted proteins are purified by precipitation with acetone. The isolated proteins are dissolved in an alkaline medium and it is carried out the hydrolysis using Alcalase or Thermolysin enzymes at controlled temperature and with agitation. After the digestion, the enzyme is inactivated and the supernatant containing peptides with antihypertensive or antioxidant capacity, is separated by centrifugation.
Comparing the results with those obtained for a control compound with recognized antioxidant capacity demonstrates that hydrolysates obtained are interesting sources of peptides with antioxidant properties. Through this procedure, it is described a use alternative of a waste material such as olive pits and that until now it was not performed. Compared with other use forms of this residue, this method allows the revaluation of this cheap source of protein.

ADVANTAGES AND INNOVATIONS

- First proposed procedure for industrial waste use of the olive processing to obtain peptide with bioactive properties.
- The procedure of the invention is simple, inexpensive, fast and safe, because it uses basic instrumentation and a commercial enzyme widely used in the food industry.
- It is a cheap source of compounds with high biological value solving the problem of the produced use of waste during the production of table olives and olive oil.

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VIA LED-LIGHTING AUTOMATED CONTROL AND SUPERVISION SYSTEM FOR PHARMACEUTICAL MANUFACTURING ENVIRONMENTS

TECHNOLOGY OFFER

Code

AGR_UAH_10

Application areas

- Other Industrial Technologies

Type of collaboration

- Commercial agreement with technical assistance

Main researches

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ABSTRACT

Control and supervision of critical environmental variables in pharmaceutical manufacturing processes, are done using programmable logic controllers and last generation industrial communication buses. These variables can include, among others, atmospheric pressure, ambient temperature and relative humidity of each of the rooms of a manufacturing plant. This control is combined with the opening and closing information from all the factory doors.
In certain critical or sterile areas, it is possible to selectively lock the doors avoiding air flows to introduce impurities into the security zones.
Along with the control system, a monitoring system that reports graphically and in real time the state of all variables and rooms is included. This supervision subsystem allows the performance of operators for changing the target values, as well as, the modification of the exclusion zones depending on the particular manufacturing process carried out. Simultaneously, a continuous record of all variables and updates is performed for the analysis, reporting, and verification required by the quality control procedure.
Finally, the entire system can set an alarm module, which generates immediately warnings related to critical limits of the variables recorded.

ADVANTAGES AND INNOVATIONS

- The project is implemented on the latest technology available in industrial automation. Both programmable logic controllers employed and implanted communication buses constitute a novel solution. It enables the integration of manufacturing work, maintenance and quality control reliably.

- Automated control and supervision of an industrial manufacturing process improves the quality of products, allowing greater repeatability of the procedures and facilitating the work of supervision. All of this will increase production with significant cost savings. Likewise, the maintenance is simplified, reducing downtime and identification and replacement of damaged items.

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SENSOGRAPH: FAST AND CHEAP METHOD FOR THE SENSORY FOOD POSITIONING

TECHNOLOGY OFFER

Code

AGR_UAH_11

Application areas

- Physics and Exact Sciences
- Agrofood Industries
- Other Industrial Technologies

Type of collaboration

- Commercial agreement with technical assistance
- Technical Cooperation

Main researches

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	1	2	3	4	5	6	7	8	9
1	·	20	13	46	81	15	15	21	16
2	20	·	28	80	15	12	16	70	15
3	13	28	·	12	35	34	66	27	50
4	46	80	12	·	34	16	16	51	16
5	81	15	35	34	·	28	23	19	26
6	15	12	34	16	28	·	58	18	46
7	15	16	66	16	23	58	·	22	50
8	21	70	27	51	19	18	22	·	26
9	16	15	50	16	26	46	50	26	·

Tabla con el número de conexiones entre cada par de muestras. Se observa que la conexión 1-5 aparece para 81 de los 100 usuarios totales, siendo el par de productos que más se identifican. Le sigue muy de cerca el par 2-4, considerados similares por 80 de los 100 usuarios.

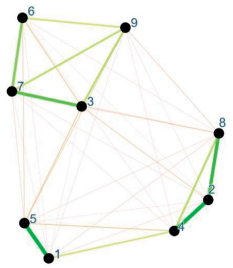

Imagen global de los nueve productos considerados, tras consultar a todos los catadores. Se observan claramente tres grupos, por un lado, el par 1-5, por otro lado, el grupo 2-4-8 (donde la conexión 4-8 es menos intensa), y finalmente el grupo 3-6-7-9.

ABSTRACT

Sensograph is a new method for sensory positioning based on the opinions of a group of untrained tasters and / or consumers, processed by software that uses geometric techniques rather than statistics.

The tasters training for conventional methods can be lengthy and costly. The technique proposed here only requires a group of tasters, not necessarily trained, and / or consumers who place the products on a sheet according to how similar they perceive them. Sensograph encodes the relative positions between the points using proximity graphs to identify the similarities that each taster has perceived among the different products offered. Finally, computational geometry techniques are used to fuse in one, all the mental images perceived by different tasters.

The software developed has proved its utility in multiple tastings, performed by experts in sensory analysis. They have shown the similarity of the results with those obtained by statistical techniques, as well as the quality/ price ratio of this method, compared to the training and coaching of a panel of expert tasters.

ADVANTAGES AND INNOVATIONS

Statistical techniques usually require specific knowledge for correct use. The method proposed here uses easily understandable geometric concepts, so it can be used by anyone with basic training, without the need for experience or training in the use of statistical techniques.

In addition, the characteristics of the method make it possible, without more tool than a simple smartphone, to perform the data capture and its processing in real time.

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NOVEL METHOD FOR THE DETECTION OF ADULTERATION OF SAFFRON WITH GARDENIA

Patent
ES2631834 A1

Code

AGR_UAH_12

Application areas

- Other Industrial Technologies
- Agrofood Industry
- Measurements and standards

Type of Collaboration

- Technical cooperation
- Commercial agreement with technical assistance
- License agreement

Main Researchers

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ABSTRACT

The object of the invention is the development of a procedure for the detection of adulterations of saffron with gardenia based on the detection of geniposide by High Performance Liquid Chromatography with Tandem Mass Spectrometry detection. The presence of "geniposide" in gardenia and its absence in saffron allows proposing this compound as a marker of adulterations of saffron with gardenia.
The procedure is based on the use of a Liquid Chromatography (LC) equipment coupled to a Tandem Mass Spectrometry (MS/MS) detector that uses a very sensitive and unambiguous method for the detection of geniposide in samples of saffron despite of being in almost negligible proportions.
It is of interest to the food sector for its potential to control the quality of saffron and avoid economic fraud.

ADVANTAGES AND iNNOVATIONS

- It allows to separate the geniposide peak of the rest of the components of the saffron in a time less than 2 minutes.
- It allows to detect unequivocally the adulteration of saffron with gardenia through the determination of geniposide.
- The use of geniposide as a marker of adulterations of saffron with extracts of gardenia allows to perform a quality control of the saffron and to detect adulterations of saffron with gardenia in a sensible and unequivocal way.
- It allows to detect up to 0.004 % of geniposide in saffron making it a very sensitive procedure.

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DEVICE FOR TAKING PICTURES OF THE TREETOPS

Patent
ES2530887 A1

Code

AGR_UAH_13

Application areas

- Agriculture and Marine Resources
- Environment and risk prevention

Type of collaboration

- Commercial agreement with technical assistance
- License agreement

Main researches

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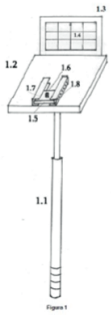

ABSTRACT

Observation of tree crowns is necessary to quantify the production of organs (leaves, flowers, fruits, seeds, buds, branches, etc.), which is relevant in both agroforestry and forestry studies and in science basic studies. Direct observation techniques are also used for the quantification of damages caused at an individual level, by pests or adverse atmospheric agents.
The device consists of an extendable pole to which a horizontal platform with a transverse rectangular frame is anchored at one end, and a movable metal plate with an imaging device, at the other. The device is operated from the ground and allows the angle of the platform to be adjusted by means of an elbow located at its bottom and the distance from the device to the reference frame by means of a movable metal plate.
The device therefore allows to raise a camera of photos or video at the height of the treetop to make the necessary observations. This ensures a perfect take of the images without having to destroy part of the tree or to climb to the top of the tree.
The device ensures an adequate stability for the taking of the images or videos and allows a regulation of the height of observation, as well as the angle of the camera or video to adapt to a wide range of heights of more than two meters.

ADVANTAGES AND INNOVATIONS

- This new method, allows to make the observations that are considered necessary as it is not invasive.
- It ensures with him, a perfect taking of the images without having to destroy part of the treetop or to climb to that heights.
- The device ensures an adequate stability for the taking of the images or videos and allows a regulation of the height of observation, as well as the angle of the camera or video.
- The device is especially useful for specimens whose height does not allow direct observation by a person from the ground. Because the image is taken referenced to a known surface (rectangular wooden frame area), images taken from different specimens can be compared, thus comparing the efficiency of different silvicultural or agricultural treatments (phytosanitary treatments, subscribers, irrigation, etc.) on the state of health and productivity of the different individuals.

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