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(54) **Tray made of open-cell expanded plastics for vegetables**

Gebrauch eines Tablett aus offenporigem expandierten Kunststoff für Gemüse

Utilisation d'un plateau en plastique expansé à alvéoles pour légumes

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(73) Proprietor: **SIRAP-GEMA S.p.A.**

I-25028 Verolanuova (Brescia) (IT)

(72) Inventors:

- **Piergiovanni, Luciano**
20090 Rodano (Milano) (IT)
- **Mostardini, Francesca**
51016 Montecatini (Pistoia) (IT)

• **Garavaglia, Luigi**

20010 Cornaredo (Milano) (IT)

• **Brazzoli, Matteo**

26010 Izano (Cremona) (IT)

(74) Representative: **Ferreccio, Rinaldo**

Botti & Ferrari S.r.l.

Via Cappellini, 11

20124 Milano (IT)

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DescriptionField of Application

- 5 **[0001]** The present invention relates generally to the expanded plastics industry, and in particular to the use of open-cell expanded plastics materials for packaging fresh produce of vegetal origin, such as vegetables, fruits, cut flowers, etc..

Prior Art

- 10 **[0002]** With the expansion known in recent times by large retail stores of the kind of "supermarkets" and "hypermarkets", packaging vegetable produce for sale on trays of polystyrene, polypropylene, etc, has gained widespread acceptance.
- [0003]** A benefit of this practice lies in that shopping time is reduced materially, since packaged produce can be pre-weighed and labelled with price.
- 15 **[0004]** Also, many vegetables can be packaged in a pre-washed state suitable for direct consumption, so that the ultimate user can save further time.
- [0005]** Not in all cases, however, can such packages ensure long-term preservation of vegetable produce in an unspoiled state, and retention of its organoleptic and nutritional properties, because they interfere significantly with the gas exchange between the vegetal tissue cells and the outside world. They also affect the aerobic respiration of cells, in the manner explained here below.
- 20 **[0006]** Aerobic respiration is among the most frequent causes for decline of the quality of fresh vegetables processed for retail sale. (A.A. Kader, 1980, "Prevention of ripening in fruits by use of controlled atmospheres", Food Technol. 34 (5):51-54; W.D. Powrie and B.J. Skura, 1991, "Modified atmosphere packaging of fruits and vegetables", Ch. 7; K.L. Yam and D.S. Lee, 1995, "Design of modified atmosphere packaging for fresh produce", Ch. 3.)
- 25 **[0007]** Aerobic respiration is a metabolic process taking place inside the cells that make up the tissues of leaves and fruits, specifically in the mitochondria; the latter being cellular organelles controlling redox reactions. Respiration is a process whereby organics are oxidised to generate energy that is stored up as ATP (AdenosineTriPhosphate) molecules sustaining vitalic functions.
- [0008]** When the plant has its root system buried in soil, the oxidation reaction consumes an organic substrate, and oxygen from air, to yield water, carbon dioxide and heat.
- 30 **[0009]** After the plant is cut off the supply from its roots, aerobic respiration goes on draining substances stored in the vegetal tissues, which causes the vegetable to wither and decay.
- [0010]** In this context, moreover, metabolism may switch from aerobic to anaerobic and consume other substances in order to acquire energy, which causes the produce to build up substances likely to alter its sensory characteristics (appearance, color, smell and taste).
- 35 **[0011]** With both the aerobic and anaerobic respiration involving exchange of oxygen and carbon dioxide between the produce and its environment, an ability to decrease the rate of respiration and to prevent the inception of anaerobic metabolism in produce for retail sale would depend on both gases not exceeding predetermined concentrations inside the package.
- [0012]** It can be appreciated, therefore, that an ideal packaging material for vegetal produce, especially produce exhibiting deep respiration (as chopped and washed produce, such as lettuce, rocket or chicory, and cut flowers do), would be one providing sufficient aeration (gas exchange) to admit oxygen and to exhaust excess carbon dioxide, so that aerobic respiration can be retarded without incurring anaerobic respiration. In other words, the package should be highly permeable to both oxygen and CO₂ (L. Piergiovanni and F. Santoro, 1997, "Material selection for the retail packaging of fresh fruit and vegetables", Proceedings of 1st International Convention Food Ingredients, New Technologies, September 15-17, Cuneo, p. 66).
- 45 **[0013]** Since the pliable materials employed in food packaging lack such features, the wrapper is not infrequently micro-perforated in order to suitably aerate the produce (D.S. Lee and P. Renault, 1998, "Using pinholes as tools to attain optimum modified atmospheres in packages of fresh produce", Packaging Technology and Science, 11(3): 119; H. Baugerod, 1980, "Atmosphere control in controlled atmosphere storage rooms by means of controlled diffusion through air-filled channels", Acta Horticulture, 116:179; P. Renault, M. Souty and Y. Chambroy, 1994, "Gas exchange in modified atmosphere packaging: a new theoretical approach for micro-perforated packs", International Journal of Food Science and Technology, 29:297; C. Ratti, G.S.V. Raghavan and Y. Gariepy, 1991, "Respiration rate model and modified atmosphere packaging of fresh cauliflower", Journal of Food Engineering, 28:239; J.D. Mannapperuma and R.P. Singh, 1994, "Design of perforated polymeric packages for the modified atmosphere storage of broccoli in minimal processing of foods and Process Optimization, R.P. Singh & F.A.R. Oliveira (eds), CRC Press (publ.), Boca Raton, FL, pp. 784:786; S. Fishman, V. Rodov and S. Ben-Yeloshua, 1996, "Mathematical model for perforation effect on oxygen and water vapour dynamics in modified-atmosphere packages", Journal of Food Science, 61:956; M. Ngadi, A. Rubibikiye, J.P. Edmond and C. Vigneault, 1997, "Gas concentration in modified atmosphere bulk vegetable packages as affected

by package orientation and perforation location", Journal of Food Science, 62:1150). This practice fails, however, to fully meet hygienic requirements, and its effects are not easily anticipated and controlled.

[0014] The pliable materials mentioned above include in particular polyethylene and polypropylene. Another material commonly used for packaging fruits and vegetables is foamed polystyrene, usually provided as closed-cell expanded sheets from which trays are thermoformed in several sizes and shapes.

Summary of the Invention

[0015] The problem underlying this invention is to provide a package for fresh vegetal produce, such as vegetables, fruit and cut flowers, which can overcome the inconveniences of the prior art.

[0016] This problem is solved in this invention by the method of packaging according to claim 1, of a tray formed from a sheet of a substantially open-cell expanded plastics material for packaging such vegetal produce as vegetables, fruit, cut flowers, etc..

[0017] The inner surface of this tray is preferably provided with openings, e.g. in the form of holes reaching down 1/3 of the tray thickness and having a diameter dimension of 0.1 to 0.5 mm.

[0018] The substantially open-cell expanded plastics material is selected preferably from a group comprising polystyrene, polyethylene, polyethyleneterephthalate, polypropylene, polyvinylchloride, and copolymers thereof.

[0019] Advantageously, this plastics material is polystyrene.

[0020] The sheet of substantially open-cell expanded plastics material suitably contains an organic or inorganic material capable of adsorbing undesired volatiles, such as ethylene, water vapor, acetaldehyde, ethanol. This material is selected preferably from a group comprising aluminum oxide, bentonite, kaolin, activated carbon, silica gel, zeolites, high molecular weight synthetic polymers like polyphenyloxide and polyimides, graphite, mica, diatomaceous earth, pumice, clay, and other finely divided solid materials.

[0021] This material has suitably an average particle size of 0.5 to 100 μm .

[0022] Organic or inorganic materials having desorbing properties, i.e. releasing substances effective to lengthen the time for which food and vegetables are kept in a fresh state, may also be used, such as Negamold® and Ethicap® (silica-based) of the firm Freud, which release ethanol vapors. The same adsorbing materials as listed here above may be used which release ethanol or ethylene (as ripening promoters with certain fruits), or may be pre-adsorbed with other volatile substances effectively turning them into desorbers.

[0023] The sheet stock of substantially open-cell plastics material used to produce the tray of this invention may also embody a substance capable of releasing carbon dioxide gradually, such as ascorbic acid and ferric/metal carbonate. This in order to create a protective atmosphere within the package and inhibit surface growth of micro-organisms on the vegetal produce.

[0024] The plastics material for this film comprises a sealing ply supporting such plastics as stretch PVC, ionomer film, and polystyrene and polyethylene copolymers.

[0025] The film should be selected to provide a desirable level, within a wide range, of gas-permeability demanded for the vegetal produce. For example, films having permeability rates, to oxygen and carbon dioxide, that vary respectively from 13,000 and 110,000 $\text{cm}^3\text{m}^{-2}24\text{h}^{-1}\text{bar}^{-1}$, (as typical of a stretch PVC film 14 μm thick at 10°C, like KOEX® of Società Arti Grafiche Fabbri), to 5,000 and 9,000 $\text{cm}^3\text{m}^{-2}24\text{h}^{-1}\text{bar}^{-1}$ (as typical of a ionomer film 25 μm thick at 10°C, like DuPont's SURLYN®) may be used.

[0026] Account should also be taken, in selecting a wrap-around film, of that moisture is likely to build up inside the package due to the large amount of water produced during aerobic respiration. Moisture control inside the package is important to the produce preservation and can be achieved by having the packaging assembly diffuse or absorb the water vapor issuing from the produce.

[0027] The combination of the substantially open-cell plastics material tray and plastics film is favorable to the exchange of gas between the interior of the produce-containing package and the outside world, thereby improving the conditions for produce preservation. In particular, near-constant substantial transfer rates of water vapor, oxygen and carbon dioxide are ensured to prevent dehydration and withering of the produce.

[0028] Unlike conventional packages, the package obtained by the inventive method does not require to be perforated for gas exchange, which makes penetration by micro-organisms and/or a soiled produce a practically impossible occurrence.

[0029] This is achieved by the use of sheet stock of an open-cell plastics foam material, heretofore only used in the manufacture of trays capable of absorbing liquids issuing from meat and fish food. An example of such a tray is disclosed in EP-A-1 118 551.

[0030] The optional addition of an organic or inorganic material capable of adsorbing undesired volatile substances is aimed to prevent any ill-smelling substances (e.g. acetaldehyde, ethylene), such as can be released in trace amounts by incipient catabolic reactions and diffuse upon unsealing the package, from unduly alarming the consumer about the produce having become spoiled.

[0031] Furthermore, the material may serve a water vapor absorbing function, effectively reducing the substrate available to microbe growth.

[0032] Procedures for manufacturing open-cell sheet plastics have long been known, as discussed for instance in Klemper and Fisch, "Handbook of Polymeric Foams and Foam Technology", Carl Hanser Verlag, 1991. Specific methods are described in EP-A-0 090 507, US-A-3 610 509, EP-A-0 642 907 and EP 0 849 309, for example.

Brief Description of the Drawings

[0033]

Figure 1 is a perspective view of a package formed by the method of this invention.

Figure 2 is a partial cross-section view of the same package.

Detailed Description

EXAMPLE

[0034] 100 kg crystal polystyrene, type N1910, supplied by Enichem, were mixed with 20 kg high-impact polystyrene (HIPS), type SR 550 (Enichem) and 7 kg masterbatch CSFB0014 from Messrs. Ferro Italia containing 60% talc, particle size 5 μ m. The material add rate was 140 kg/h. The resulting mixture was fed through a twin-screw extruder of LMP 19 E type, with liquid butane injected (at 6 kg/h) as foaming agent.

[0035] The temperature pattern in the various zones of the extruder was as follows:

T1	260°C	T6	120°C
T2	260°C	T7	118°C
T3	260°C	T8	120°C
T4	78°C	T9	115°C
T5	90°C	T10	110°C.

[0036] The resulting foam sheet had the following characteristics:

- Weight (g/m²) 360
- Thickness (mm) 5.3
- Density (g/l) 69
- Open Cell Rating 89%.

[0037] The polystyrene foam tube was then spread open, and the sheet so obtained was taken to the nip of a roll pair and coiled. The sheet was then surface pierced under a roll equipped with metal needles.

[0038] The sheet so processed was then worked into trays on conventional thermoforming equipment, with the pitted side on the inside of each tray.

[0039] The tray comprises a body having a typical open-cell morphology. Wall and bottom thickness is 4 to 5 mm, and each pit has a diameter 0,2 mm to a depth equal to 1/3 the tray thickness.

[0040] Each tray comprises a body 1 having a bottom 2 formed with pits 4, and sidewalls 3.

[0041] Figures 1 and 2 show a vegetal produce placed on the tray bottom 2, and a film 5 sealed around the rim 6 of the tray.

[0042] The gas permeability properties of trays obtained from the sheet stock of open-cell polystyrene formed as in the Example, but without pits, were measured first.

[0043] For the purpose, fifty empty trays were sealed with an aluminum-faced film impervious to gases, and tested for permeability to oxygen and carbon dioxide at two different temperatures (5°C and 25°C) for comparison with standard trays of closed-cell polystyrene foam of the same size. The results are charted here below.

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GAS PERMEABILITY AS MEASURED AT 5°C.			
	Permeability to oxygen*	Permeability to carbon dioxide*	Maximum selectivity**
Standard tray	50 ↔ 150	240 ↔ 360	7.2 ↔ 2.4
Inventive tray	1000 ↔ 1400	1100 ↔ 1700	1.7 ↔ 1.2
* = cm ³ 24h ⁻¹ bar ⁻¹ ** = Permeability Ratio (PCO ₂ /PO ₂)			

GAS PERMEABILITY AS MEASURED AT 25°C.			
	Permeability to oxygen*	Permeability to carbon dioxide*	Maximum selectivity**
Standard tray	130 ↔ 270	400 ↔ 500	3.8 ↔ 1.9
Inventive tray	1000 ↔ 1400	1400 ↔ 2600	2.6 ↔ 1.9
* = cm ³ 24h ⁻¹ bar ⁻¹ ** = Permeability Ratio (PCO ₂ /PO ₂)			

[0044] The trays according to the invention show to be 4 to 12 times more permeable than the standard trays, and are less affected by temperature variations.

[0045] The overall permeability of a package obtained by the inventive method was then measured. The sealing film was a stretch PVC film of the kind customarily used for vegetal produce packaging. The comparison packages were identical but for the tray, which was formed from closed-cell polystyrene foam to the same size.

[0046] The results are charted here below.

GAS PERMEABILITY, AS MEASURED AT 5°C, OF PACKAGES SEALED UNDER PVC FILM.			
Package	Permeability to oxygen*	Permeability to carbon dioxide*	Maximum selectivity**
Standard tray + PVC	500 ↔ 700	1900 ↔ 3100	6.2 ↔ 4.4
Inventive tray +PVC	1100 ↔ 1900	2300 ↔ 3500	3.2 ↔ 1.8
* = cm ³ 24h ⁻¹ bar ⁻¹ ** = Permeability Ratio (PCO ₂ /PO ₂)			

[0047] Despite the contribution from the permeability and selectivity of the PVC film, the open-cell tray of this invention shows characteristics that differ sharply from standard. This can be ascribed to mainly capillary gas diffusion through the package.

[0048] These permeability properties of the open-cell tray according to the invention afford improved preservation of many vegetal produce, such as vegetables; whole, sliced, or chopped fruit; and cut flowers, by retarding the inception of anaerobic metabolism. This effectively extends the shelf life of produce and improves their quality.

[0049] Further comparative tests were carried out to corroborate this hypothesis on packages according to the inventive method loaded with vegetal produce, and similar packages comprising a different tray. The tray was a standard one of closed-cell polystyrene foam in one case (Comparison 1), and of clear polypropylene in the other (Comparison 2).

[0050] The packages under test contained each the same amount of produce, being salad in the one case and carrot strips in the other.

[0051] The oxygen and carbon dioxide percentages inside the packages were measured over a one week time. The results are shown in the charts here below.

% OXYGEN IN THE SALAD-CONTAINING PACKAGES			
Time (days)	Inventive package	Comparison 1	Comparison 2
0	20.9	20.9	20.9
3	14.9	9.5	6.5
7	10.0	2.0	3.0

% CARBON DIOXIDE IN THE SALAD-CONTAINING PACKAGES			
Time (days)	Inventive package	Comparison 1	Comparison 2
0	0.0	0.0	0.0
3	2.0	2.2	4.5
7	3.0	3.0	4.0

[0052] As shown in the above charts, the package formed by the method of this invention exhibits the highest oxygen concentration, meaning reduced risk of anaerobic metabolism, and an adequate level of carbon dioxide. Under this condition, aerobic respiration is slowed down, and with it produce decay, at the same time as microbic growth is countered and the inception of anaerobic respiration postponed.

[0053] The results obtained with the packages containing carrot strips confirm those with salad-containing packages, as shown in the following charts.

% OXYGEN IN THE CARROT STRIPS-CONTAINING PACKAGES		
Time (days)	Inventive Package	Comparison 1
0	20.9	20.9
3	9.5	10.0
7	10.0	2.0

% CARBON DIOXIDE IN THE CARROT STRIPS-CONTAINING PACKAGES		
Time (days)	Inventive Package	Comparison 1
0	0.0	0.0
3	3.5	4.0
7	3.0	3.0

[0054] From the results given in the above charts, many of the advantages of a package obtained by the method of this invention can be readily inferred.

[0055] First, a high gas permeability, ensuring adequate aeration for produce that may require it.

[0056] Selectivity is low, and can be adjusted to suit individual produce requirements. In some cases, selectivity is close to unity, indicating permeabilities to oxygen and carbon dioxide that lie close together.

[0057] Also, permeability changes little with temperature, indicating a performance shelf.

[0058] These packages can be adjusted to suit different respiratory activities of vegetal produce by either providing trays in a range of different pore sizes (as by varying the open-to-closed cell ratio of the sheet stock and/or surface piercing to form pits with different diameters or different densities in the tray inner surface), or using film wrappers having different permeability properties.

[0059] Finally, it may be arranged for the polymer matrix of the sheet stock used for making the trays to include organic or inorganic substances having adsorbing and/or desorbing properties for specific volatile substances (ethylene, water vapor, oxygen, ethanol, acetaldehyde, etc.).

Claims

1. Method of packaging fresh vegetal produce, such as vegetables, fruit and cut flowers, comprising the steps of placing said vegetal produce- on a tray obtained from sheet stock of a substantially open-cell foam plastics material, and sealing the lot under a plastics film, so as to improve preservation of the vegetal produce, thanks to the permeability ratio PCO_2/PO_2 of said tray, which is such as to slow down aerobic respiration and to postpone the inception of anaerobic respiration.

2. Method according to Claim 1, wherein the inner surface of said tray is pitted with holes.
3. Method according to Claim 2, wherein said holes have a diameter of 0.1 to 0.5 mm to a depth equal to 1/3 the thickness of the sheet stock.
4. Method according to Claim 1, wherein said substantially open-cell foam plastics material is selected from a group comprising polystyrene, polyethylene, polyethyleneterephthalate, polypropylene, polyvinylchloride, and copolymers thereof.
5. Method according to Claim 4, wherein said plastics material is polystyrene.
6. Method according to any of the preceding claims, wherein said sheet stock of substantially open-cell foam plastics material contains an organic or inorganic material capable of adsorbing undesired volatiles.
7. Method according to Claim 6, wherein said adsorbing material is selected from a group comprising aluminum oxide, bentonite, kaolin, active charcoal, zeolites, high molecular weight synthetic polymers like polyphenyloxide and polyimides, graphite, mica, diatomaceous earth, pumice, and clay.
8. Method according to Claim 7, wherein the average particle size of said adsorbing material is in the range of 0.5 to 100 μm .
9. Method according to any of Claims 1 to 8, wherein said sheet stock of substantially open-cell foam plastics material is incorporated a substance capable of gradually releasing carbon dioxide and is selected from a group comprising ascorbic acid and ferric/metal carbonate.
10. Method according to any one of Claims 1 to 9, wherein the plastics material of said film is selected from a group comprising stretch PVC, ionomer film, polystyrene copolymers, and polyethylene.

Patentansprüche

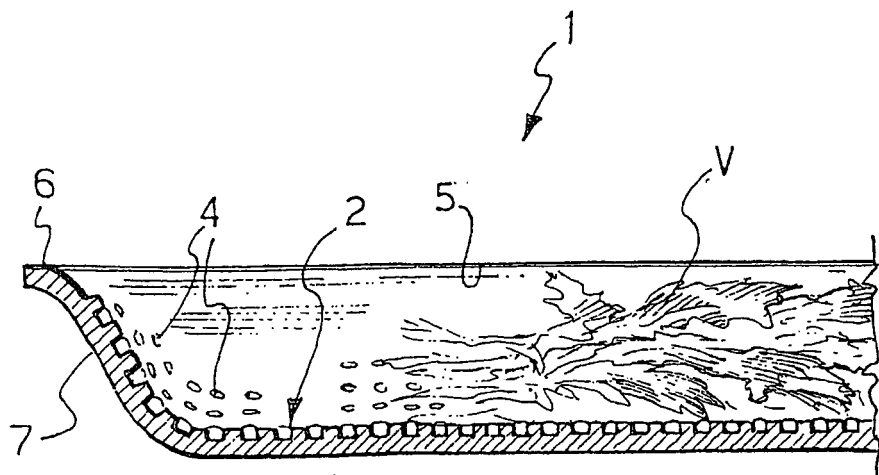
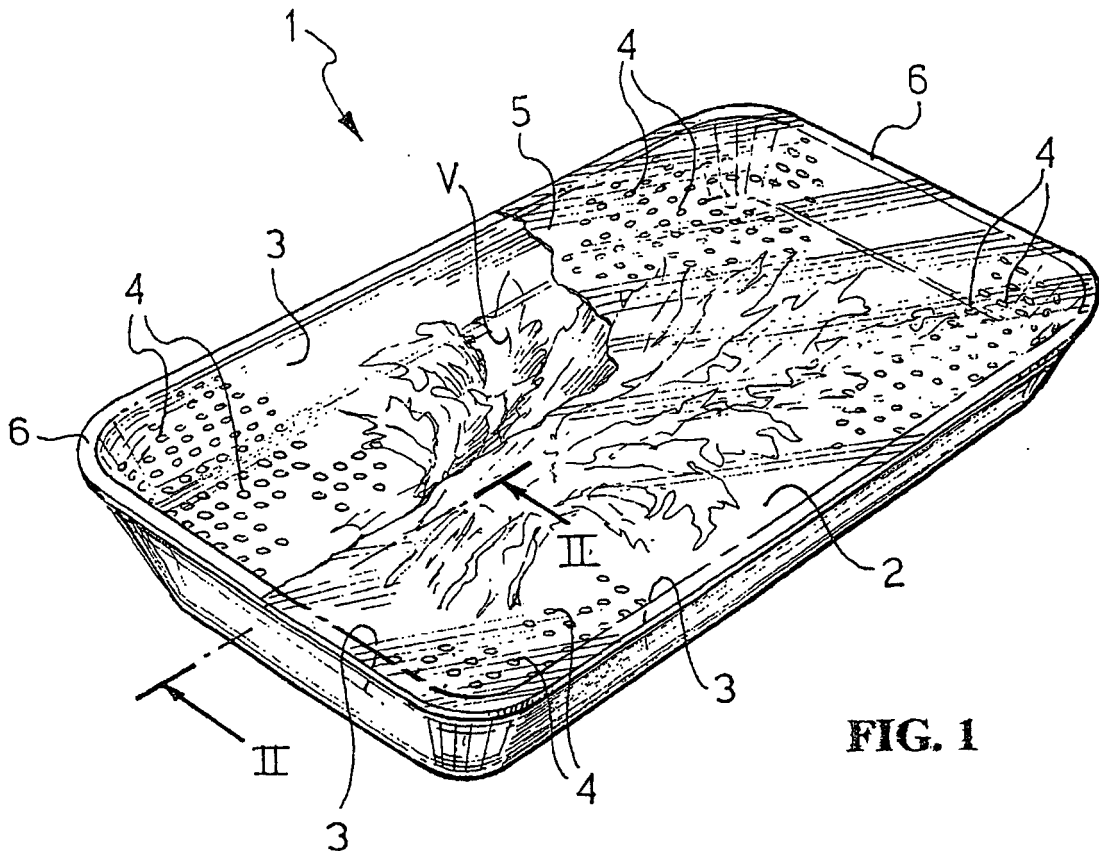
1. Verfahren zum Verpacken eines frischen vegetativen Erzeugnisses, wie Gemüse, Frucht und Schnittblumen, umfassend die Schritte Legen des vegetativen Erzeugnisses auf eine Ablage, die von einem Bahnenvorrat eines im Wesentlichen offenzelligen Schaumplastikmaterials erhalten wird, und Verschließen des Anteils unter einem Plastikfilm, um die Konservierung des vegetativen Erzeugnisses aufgrund des Permeabilitätsverhältnisses PCO_2/PO_2 der Ablage zu verbessern, die derart ist, dass sie die aerobe Atmung verringert und den Beginn der anaeroben Atmung verzögert.
2. Verfahren gemäß Anspruch 1, wobei die innere Oberfläche der Ablage mit Löchern versehen ist.
3. Verfahren gemäß Anspruch 2, wobei die Löcher einen Durchmesser von 0,1 bis 0,5 mm bis eine Tiefe gleich zu 1/3 der Dicke des Bahnenvorrats aufweisen.
4. Verfahren gemäß Anspruch 1, wobei das im Wesentlichen offenzellige Schaumplastikmaterial ausgewählt ist aus der Gruppe umfassend Polystyren, Polyethylen, Polyethyleneterephthalat, Polypropylen, Polyvinylchlorid und Copolymere davon.
5. Verfahren gemäß Anspruch 4, wobei das Plastikmaterial Polystyren ist.
6. Verfahren gemäß einem der vorhergehenden Ansprüche, wobei der Bahnenvorrat des im Wesentlichen offenzelligen Schaumplastikmaterials ein organisches oder anorganisches Material enthält, das in der Lage ist, ungewünschte flüchtige Anteile zu adsorbieren.
7. Verfahren gemäß Anspruch 6, wobei das adsorbierende Material ausgewählt ist aus der Gruppe umfassend Aluminiumoxid, Bentonit, Kaolin, Aktivkohle, Zeolite, synthetische Polymere mit hohem Molekulargewicht, wie Polyphenyloxid und Polyimide, Graphit, Glimmer, Kieselgur, Bimsstein und Ton.
8. Verfahren gemäß Anspruch 7, wobei die durchschnittliche Partikelgröße des adsorbierenden Materials im Bereich

von 0,5 bis 100 µm liegt.

9. Verfahren gemäß einem der Ansprüche 1 bis 8, wobei der Bahnenvorrat des im Wesentlichen offenzelligen Schaumplastikmaterials eine eingebaute Substanz aufweist, die in der Lage ist, schrittweise Kohlendioxid freizusetzen, und die ausgewählt ist aus einer Gruppe umfassend Ascorbinsäure und Eisen-/Metallcarbonat.
10. Verfahren gemäß einem der Ansprüche 1 bis 9, wobei das Plastikmaterial des Films ausgewählt ist aus einer Gruppe umfassend Stretch-PVC, Ionomerfilm, Polystyrencopolymere und Polyethylen.

Revendications

1. Procédé de conditionnement de produits végétaux frais, comme des légumes, des fruits et des fleurs coupées, comprenant les étapes consistant à placer lesdits produits végétaux sur un plateau obtenu à partir de feuillets d'un matériau en plastique expansé à cellules essentiellement ouvertes, et à sceller le tout sous un film plastique, de façon à améliorer la conservation des produits végétaux, à cause du rapport de perméabilité PCO_2/PO_2 dudit plateau qui est tel qu'il ralentit la respiration aérobie et qu'il reporte la phase de démarrage de la respiration anaérobie.
2. Procédé selon la revendication 1, dans lequel la surface intérieure dudit plateau est piquée ou criblée d'orifices.
3. Procédé selon la revendication 2, dans lequel lesdits orifices ont un diamètre de 0,1 à 0,5 mm et une profondeur égale à 1/3 de l'épaisseur des feuillets.
4. Procédé selon la revendication 1, dans lequel ledit matériau en plastique expansé à cellules essentiellement ouvertes est choisi à partir d'un groupe comprenant le polystyrène, le polyéthylène, le polyéthylène téréphtalate, le polypropylène, le polychlorure de vinyle et leurs copolymères.
5. Procédé selon la revendication 4, dans lequel ledit matériau en plastique est le polystyrène.
6. Procédé selon l'une quelconque des revendications précédentes, dans lequel lesdits feuillets du matériau en plastique expansé à cellules essentiellement ouvertes contiennent un matériau organique ou inorganique capable d'adsorber des composés volatiles indésirables.
7. Procédé selon la revendication 6, dans lequel ledit matériau adsorbant est choisi à partir d'un groupe comprenant l'oxyde d'aluminium, la bentonite, le kaolin, le charbon actif, les zéolites, les polymères synthétiques de poids moléculaire élevé comme le polyphényloxyde et les polyimides, le graphite, le mica, la terre de diatomées, la ponce et l'argile.
8. Procédé selon la revendication 7, dans lequel la taille de particule moyenne dudit matériau adsorbant est comprise entre 0,5 et 100 µm.
9. Procédé selon l'une quelconque des revendications 1 à 8, dans lequel dans lesdits feuillets du matériau en plastique expansé à cellules essentiellement ouvertes est incorporée une substance capable de libérer progressivement du dioxyde de carbone et est choisie à partir d'un groupe comprenant l'acide ascorbique et le carbonate de fer ferrique/d'un métal.
10. Procédé selon l'une quelconque des revendications 1 à 9 dans lequel le matériau en plastique dudit film est choisi à partir d'un groupe comprenant le PVC étirable, un film ionomère, les copolymères du polystyrène, et le polyéthylène.



REFERENCES CITED IN THE DESCRIPTION

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