The invention is a product and a process wherein Medicinal Delta-9 tetrahydrocannabinol (Δ9-THC) and potentially other cannabinoids (medicinal cannabis substances) associated with decarboxylated cannabis, including yet not necessarily limited to cannabidiols, and cannabigerol are rendered into a fatty foodstuff and then molded into a mold that also acts as a package. The best mode of the invention is a blister pack containing a plurality of voids or receptacles of desired sizes. A product that is characterized by a controlled amount of medicinal cannabis per unit volume of a fatty foodstuff base material is inserted into the mold, then cooled, and finally sealed. Each void or receptacle contains a known amount of medicinal cannabis that are independently dispensable.
Figure 1: Basic Cannabinoid Structures

- THCA-A
- CBDA
- CBN
- CBD

Chemical structures with reactions:
- Decarboxylation
- Transformation
- Degeneration
Render an Intermediate Product containing Medicinal Cannabis into a Fatty Foodstuff

Place the Medicinal Fatty Foodstuff in a Package Mold

Vibrate the Filled Package Mold

Chill the Filled Package Mold

Seal the Filled Package Mold

Label the Package Mold

Figure 2: Rendering, Molding, Sealing, & Labeling
Top View of a Filled Mold Tray

Length Wise Side View of a Filled Mold Tray

Width Wise Side View of a Filled Mold Tray

Figure 4: Perspective Views of a Filled Mold Tray
Figure 5: A Filled Mold Tray and Cover
MEDICINAL CANNABIS FATTY FOODSTUFF

FEDERAL SUPPORT STATEMENT

[0001] Not Applicable

CROSS REFERENCE TO RELATED APPLICATIONS

[0002] This application claims benefit of Provisional Patent Application #61/401,824 Medicinal Cannabis in a Fatty Foodstuff.

SEQUENCE LISTING

[0003] Not Applicable

BACKGROUND OF THE INVENTION

[0004] Raw cannabis contains tetrahydrocannabinol carboxylic acid (THC-COOH); this substance is also referred to as THC acid, Δ9-THC, THC-A, or THCA.

[0005] The article that appears in the Journal of Chromatography “Innovative development and validation of an HPLC/CDAD method for the qualitative determination of major cannabinoids in cannabis plant material” reference [1], see section 1.1; this article reports that THC-B is another form of THC acid that appears only in trace amounts in raw cannabis. This article also reports other substances in raw cannabis, including cannabidiolic acid (CBDA) and cannabigerolic acid (CBGA); a substance cannabinol (CBN) is also reported present in aged cannabis.

[0006] THC acid may be converted into the psychoactive substance Tetrahydrocannabinol (THC), also known as (Δ2-THC) through processes that decarboxylate the THC acid. Decarboxylation is a chemical reaction that converts an acid to a phenol and releases carbon-dioxide (CO2); a carbon atom is removed from a carbon chain.

[0007] Reference [1] also discusses and shows the decarboxylation of THC acid into Δ2-THC, the decarboxylation of cannabidiolic acid (CBDA) into cannabidiol (CBD), and the decarboxylation of cannabigerolic acid (CBGA) into cannabigerol (CBG). Decarboxylation occurs when cannabis is exposed to heat, light, cofactors or solvents.

[0008] Historical and anecdotal reports of the medicinal use of cannabis date back for millennia, in recent decades the psychoactive ingredient Δ9-THC has been extracted through a variety of processes; to date processes that decarboxylate of THC-A into psychoactive Δ2-THC in controlled ways use toxic solvents; frequently a distillation process such as fraxital distillation is then used to separate the toxic or flammable solvents from the active ingredient after decarboxylation. THC-A decarboxylated into Δ2-THC in controlled ways using toxic or flammable solvents:

[0009] Related U.S. Pat. Nos. 6,365,416 B1 [2], 6,730,519 [3]; and patent publication US 2002/0039795 A1 [4] by Elslohsy et. al. isolates Δ2-THC from cannabis base material using toxic non-polar organic solvents such as hexane, heptane, or iso-octane. U.S. Pat. No. 6,730,519 [3] was sponsored by a National Institute for Drug Abuse, Small Business Innovative Research grant; Related U.S. Pat. Nos. disclosures 6,365,416 [2] and 6,730,519 [3] in their Background of the invention section provide excellent details regarding the medical use of Δ2-THC. the inventors conclude that extracting Δ2-THC from raw cannabis material is more cost effective than synthetically created FDA approved medicinal THC; and they reference prior art dating from 1942 through 1972 that relate to THC extraction or analysis of hashish and “red oil”; the processes referenced frequently use toxic or flammable elements such as carbon tetrachloride, benzene, N-dimethyl formamide/cyclohexane, or hexane.

[0010] U.S. Pat. Nos. 7,524,881 B2 [5], and 7,592,468 B2 [6] Goodwin et. al. discloses processes that extract Δ2-THC from raw cannabis; this process converts THC acid into salt using non-polar solvents such as pentane, hexane, heptane, or octane; again toxic or flammable solvents are used.

[0011] GW pharmaceuticals of Great Britain has created a vaporized form of medicinal Δ2-THC called Savitex.

[0012] Savitex is administered with an inhaler, similar to an inhaler used to administer asthma medication. Information regarding the therapeutic use and mechanisms of action of Savitex can be found on GW pharmaceuticals website. Savitex is currently being studied for affectivity by patients with multiple sclerosis, cancer pain, and neuropathic pain.

[0013] GW pharmaceuticals reports that the human body has receptors to frequently called CB1 and CB2 and that Δ9-THC bonds to CB1 cannabinoid type receptors located in the human brain, where cannabidiol bonds to CB2 (cannabinoid type 2) receptors located in the human lymphatic system. The URLs below link to reports on GW Pharmaceuticals website, they describe that Savitex is being used medicinally and describe some of the mechanisms of action of medicinal cannabis; these reports have also been combined into reference [7]:


[0018] The science related to how these various substances affects the human body is in its infancy, even so GW pharmaceuticals of Great Britain reports that the human body has receptors CB1 and CB2 to which Δ2-THC and CBD (cannabinoid) bond respectively. They also report that the human body has CB1 receptors predominately located in the human brain, and CB2 receptors located predominantly in the human lymphatic system.

[0019] Most reports indicate that psychoactive substance Δ2-THC is the primary active medicinal substance derived from cannabis; other substances contained within cannabis may however also have medicinal qualities. Some researchers suspect that cannabinoid (CBD) may mitigate pain; more scientific research is needed to understand how the various substances derived from cannabis affect the human body. GW Pharmaceuticals also state in their Mechanisms of Action “The combination of THC, CBD and essential oils in cannabis-based medicinal extracts may produce a therapeutic preparation whose benefits are greater than the sum of its parts”.

[0020] Reference [8] “Effects of cannabinoid on schizophrenialike symptoms in people who use cannabis”; from The British Journal of Psychiatry (2008) reports that Δ2-THC tends to “elevate levels of anxiety and psychotic symptoms in healthy individuals. In contrast, cannabidiol (CBD), another major constituent of some strains of cannabis, has been found to be anxiolytic and to have antipsychotic properties, and may be neuroprotective in humans”.

[0021] A key finding of this study [8]: “The THC only group showed higher levels of positive schizophrenia-like symptoms compared with the no cannabinoid and the THC+ CBD groups. This provides evidence of the divergent prop-
properties of cannabinoids and has important implications for research into the link between cannabis use and psychosis".

Reference [9] Therapeutic Potential of Non-Psychotropic Cannabidiol in Ischemic Stroke; Hayakawa, Mishima, & Fujisawa; Dept. of Neuropsychology, Faculty of Pharmaceutical Sciences, Fukuoka University, Published Jul. 8, 2010. Δ⁶-THC. This reference reviews various substances found within cannabis, it states in its introduction that “Cannabis contains over 60 different terpene-phenol compounds that have been identified so far but the role and importance of many of these has yet to be fully understood”.

Reference [9] also states “cannabinol (CBD), cannabigerol (CBG), cannabidivarfin (CBDV) are known as non-psychotomimetic components of cannabis. These compounds have shown anti-inflammatory, immunosuppressive, analgesic, anxiolytic and anti-cancer effects”. This reference also discusses the neuroprotective abilities of CBD in stroke victims.

The above mentioned references [7], [8], and [9] demonstrate that Δ⁶-THC is not the only substance contained within medicinal cannabis with therapeutic benefits to people. All of these references recommend additional study or mention that the effect of the substances contained within cannabis on humans is not fully understood. Variations of ratios of substances contained within medicinal cannabis are reported to have different effects; as in reference [8], adjusting the ratio Δ⁶-THC to CBD is shown to be critical in limiting anxiety and psychotic symptoms associated with the intake of high concentrations of Δ⁶-THC as compared to CBD. New substances and therapeutic uses of substances derived from cannabis are likely to be discovered as research in this field continues.

Reference [10] “Isolation of Δ⁶-THCA from hemp and analytical aspects concerning the determination of Δ⁶-THC in cannabis products”; Dussly et al. Institute of Legal Medicine, Basel Switzerland, available online Aug. 18, 2004. This reference quantifies the amount of THC acid (THCA-A) that is converted into Δ⁶-THC when cannabis is smoked under various conditions: Section 2 reviews cannabis reduced into a concentrated THC acid (THCA-A) solution using solvents. Samples of the concentrate are then decarboxylated at various temperatures in a Gas Chromatography (GC) oven; some samples are then analyzed using High Performance Liquid Chromatography (HPLC). This disclosure discusses how various substances within medicinal cannabis may be transformed at different temperatures:

Partial decarboxylation of concentrated THCA-A in solution into Δ⁶-THC at 120 degrees C.

Significant decarboxylation of concentrated THCA-A in solution into Δ⁶-THC at 140 degrees C.

Nearly complete decarboxylation of concentrated THCA-A in solution into Δ⁶-THC at 160 degrees C. along with some degradation of Δ⁶-THC into cannabionil and dihydromcannabinol at 160 degrees C.

A significant percentage of Δ⁶-THC being degraded into cannabionil and dihydromcannabinol at 180 degrees C.

The decarboxylation of concentrated THCA-A in solution into Δ⁶-THC, and the degradation of Δ⁶-THC into cannabionil and dihydromcannabinol are shown to vary with temperature. Temperature controls are therefore one mechanism for controlling ratios of certain substances in medicinal cannabis.

Concentration ratios of THC acid (THCA-A) to cannabidiolic acid (CBD) vary with the types cannabis selected; THCA-A decarboxylates into Δ⁶-THC, and CBD decarboxylates into CBD.


Reference [12] Cannabins and Cannabis Extracts: Greater Than the sum of Their Parts?, by John M. McPartland and Ethan B. Russo; 2001 The Haworth Press, Inc. this reference reports the boiling temperature of cannabis related substances, the boiling temperatures reported include: Δ⁹-THC 157 degrees C., cannabidiol (CBD) 160-180 degrees C., cannabionil (CBN) 185 degrees C., and Δ⁸-THC 175-178 degrees C.


Reference [14] a drawing from www.Cannabis-Science.com showing chemical structures in cannabis related materials. The drawing is entitled “Cannabinoinds”; the drawing shows an important aspect of cannabinoind science, Cannabidiol (CBD) can be converted into Δ⁹-THC. The chemical structures are very similar, they have the same molecular weight and the same chemical formula. Reference [15] patent application publication US 2008/0221330 by Webster et al. published Sep. 11, 2008 discusses the conversion of Cannabidiol (CBD) to Δ⁹-THC and Δ⁸-THC are discussed in; various toxic or flammable solvents are used in these processes; one cannabis related substance is converted another through a chemical process. Reference [16] Hemp Husbandry, an excerpt from Chapter 6 Cannabinoid Chemistry: Robert A. Nelson, Copyright 2000; another excellent review of the chemistry of cannabis.

Uncontrolled Crude Processes

Other processes have been used to extract Δ⁹-THC from raw cannabis in uncontrolled ways, some of these processes use toxic materials and others do not; frequently such processes attempt to produce a final product in a single uncontrolled crude step. Examples of such processes include the use of butane, a toxic solvent, to make the cannabis “red oil” commonly called hash oil. A method found on the internet reference [17] “How To Make Hash Oil from Marijuana” reviews the use of butane, here raw cannabis is saturated in butane, the butane reduces the raw cannabis into an oil that is separated from the plant material, the butane evaporates continuously during the process of reduction; a paper filter is used to separate the oil from plant material. The author also recommends a secondary process of mixing the oil with isopropyl alcohol, then evaporating the isopropyl alcohol overnight by letting it sit. The author of this reference believes that the isopropyl alcohol reduces the photosensitivity of THC contained within the oil. The process disclosed has no scientific controls, and shows disregard for laws relating to treating cannabis as a controlled substance or preparation of food products. The disclosure is provided as an example of uncontrolled methods that are available to the public.

In contrast, uncontrolled crude processes that use no toxic chemicals include simply baking cannabis into cookies.
or bread, or making a tea by steeping cannabis in hot water. Cannabis infused dairy butter can be made by melting dairy butter in a pot, adding raw cannabis and cooking the mixture for a period of time, up to 24 hours. Hashish may be made without the use of toxic chemicals, “How to Make Wicked Hash” by Lisa Scammel and Bianca Sind[17] reviews various methods for separating THC acid infused trichomes from cannabis plant materials, forming it into blocks that are then covered in paper, and then heated in fry pan until the blocks melt; the processes reviewed are uncontrolled, and have no scientific controls, they include: “Flat Screening”, “Drum Machines”, “the blender method”; and “ice-water filtration” methods are reviewed. This reference is also provided as another example of uncontrolled crude methods that are available to the public. This disclosure also shows some disdain for laws relating to cannabis as a controlled substance.

[0038] Smoking, in the form of a cigarette or pipe, is the most frequently used uncontrolled process for decarboxylating cannabis.

[0039] The processes discussed above that rely on temperature simply use temperature yet do not control temperature; if the temperature is too low decarboxylation will be incomplete, if temperatures are too high decarboxylated substances within cannabis will be lost to evaporation. Temperature control is therefore characteristic of a process that relies on temperature to decarboxylate. This is why the “uncontrolled” processes reviewed above that rely on temperature are truly uncontrolled.

[0040] Processes discussed above that use toxic or flammable solvents in “uncontrolled” ways rely on saturating available cannabis with the toxic or flammable solvent then filtering oil from plant parts.

[0041] The process sprays a solvent through a tube filled with a volume of cannabis as described in reference [18] implies that more or less solvent will be required will be required to remove all of the trichomes from available cannabis; even small variables, such as how the cannabis is prepared will affect the efficiency of the solvent’s ability to reduce the cannabis uniformly.

[0042] For example as the raw cannabis material density varies per unit length of the tube, the solvent’s efficiency of reducing cannabis will vary because butane evaporates very quickly; the process simply is not capable of controlling how much solvent contacts a given volume of cannabis before it evaporates; thus the process is uncontrolled in at least this one way.

[0043] Reference [19] Patent Application Publication US 2008/0241339, “Hemp Food Product Base and Processes”, by Mitchell et al. Publication Date Oct. 2, 2008. The reference heats hemp seeds in water and then mills or grinds the seeds, the seeds are then added into soups, beverages, and foods, the seeds are reported to have no Δ²-THC or medicinal cannabis.

[0044] Recently, with the legalization of medical cannabis in 14 states, various edible cannabis products have become available; such products include cookies, biscuits, cooking oil, and dairy butter. These products are made without scientific controls by small producers because pharmaceutical companies do not produce edible cannabis products. Products like cookies or biscuits are eaten as is; products like cooking oil or dairy butter are usually added or cooked into other foods. Each one of these individual edible products have limitations the most significant one is uncontrolled dosage, cookies or biscuits contain cannabis fiber that often makes them green in color, and dairy products such as dairy butter spoil at room temperature.

[0045] Reference [20] is a provisional patent application #61/401,824 by the same inventor of this patent application; this provisional patent application describes how to render medicinal cannabis into a fatty foodstuff with a known concentration per unit volume of the fatty foodstuff, it also describes the controlled decarboxylation & extraction of cannabinoids from raw cannabis.

[0046] Reference [21] is marketing literature for a blister pack or “blister card” is manufactured by Onnen company and is typically used for packaging pills, this blister pack has been adapted as a preferred package mold used in the invention described below.

[0047] Information regarding these blister packs may be found on the internet at http://www.onnencompany.com/blister_cards.htm

**BRIEF SUMMARY OF THE INVENTION**

[0048] Provisional Patent application 61/401,824 is hereby incorporated by reference into this specification.

[0049] The invention is a product and a process wherein cannabinoids such as Medicinal Δ²-THC and/or other substances associated with decarboxylated cannabis, including yet not necessarily limited to cannabidiols, cannabigerol are contained or processed into foodstuffs or medicinal compounds in controlled ways and with specific characteristics. First a medicinal substance is rendered into a fatty foodstuff per unit volume making a base product, and then the medicinally infused product is packaged within a mold, the mold may also act as a package.

[0050] The product is characterized by a controlled amount of cannabinoids per unit volume of fatty foodstuff that does not spoil at room temperature that is relatively solid (non-liquid) at room temperature, and that melt or soften at body temperature. Another aspect of the product is the use of a mold that also acts as a package where individual dosages of medicine are individually dispensed. Fatty foodstuff products containing known concentrations of one or more type of cannabinoid are also as aspect of this invention. Providing controlled amounts or ratios of Δ²-THC as compared to CBD is one example.

[0051] An intermediate product containing medicinal cannabis, typically an extract containing cannabinoids in a known concentration in a known volume is rendered into a known volume of a fatty foodstuff using a rendering machine commonly used to make chocolate. First the fatty foodstuff is melted and then the intermediate containing product/extract into is mixed into the fatty foodstuff uniformly producing a fatty foodstuff with a known concentration of medicine per unit volume of the fatty foodstuff. The medicine infused fatty foodstuff is then introduced into a mold that contains a plurality of voids/receptacles, then cooled, sealed, and labeled.

[0052] The best mode of the package mold is a blister pack containing a plurality of voids or receptacles of desired sizes. Once filled the blister pack is an open tray of individual dosages of medicinal fatty foodstuff. Since the fatty foodstuff contains a pre-determined amount of medicine per unit volume and since the voids/receptacles are of known sizes, each void/receptacle contains a precise amount or dosage of medicine after they are filled.

[0053] Typically the molds containing the fatty foodstuff are flash cooled by simply placing them in a freezer; alterna-
tively cooling may be performed in a regenerator or at room temperature. Once cooled the molds are sealed on the open side of the mold. Various types of materials and methods may be used to seal the molds. The best mode for sealing is by using a cover with a food grade adhesive.

[0054] The mold is now a shipping and dispensing package where each void or receptacle contains a known amount of medicinally infused fatty foodstuff with a known amount or dosage of medicine. Simply break the seal above one of the filled voids/receptacles and a single dose of your medicine may be accessed.

[0055] Minimal essential steps in preparing the package mold are: Fill voids/receptacles in the mold with a fatty foodstuff with a known concentration of medicine per unit volume; Seal the mold. An additional cooling step is desirable to prevent individuals from working with warm or hot materials.

DETAILED DESCRIPTION OF THE INVENTION

[0056] Provisional Patent application 61/401,824 is hereby incorporated by reference into this specification.

[0057] The invention is a product and a process wherein cannabinoids such as Medicinal Δ9-THC and/or other substances associated with decarboxylated cannabis, including yet not necessarily limited to cannabidiol, cannabinol are contained or processed into foodstuffs or medicinal compounds in controlled ways and with specific characteristics. First a medicinal substance is rendered into a fatty foodstuff per unit volume making a base product, and then the medicinally infused product is packaged within a mold, the mold may also act as a package.

[0058] The product is characterized by a controlled amount of cannabinoids per unit volume of fatty foodstuff that does not spoil at room temperature that is relatively solid (non-liquid) at room temperature, and that melt or soften at body temperature. Another aspect of the product is the use of a mold that also acts as a package where individual dosages of medicine are individually dispensed. Fatty foodstuff products containing known concentrations of one or more type of cannabinoid are also as aspect of this invention. Providing controlled amounts or ratios of Δ9-THC as compared to CBD is one example.

[0059] An intermediate product containing medicinal cannabis, typically an extract containing medicinal cannabis in a known concentration in a known volume is rendered into a known volume of a fatty foodstuff using a rendering machine commonly used to make chocolate. First the fatty foodstuff is melted and then the intermediate containing product/extract into is mixed into the fatty foodstuff uniformly producing a fatty foodstuff with a known concentration of medicine per unit volume of the fatty foodstuff. The medicine infused fatty foodstuff is then introduced into a mold that contains a plurality of voids/receptacles, then cooled, sealed, and labeled.

[0060] An extraction method is not claimed in this application even though a unique controlled decarboxylation and extraction method was disclosed in the related Provisional Patent application #61/401,824. Related Provisional Patent application #61/401,824 also disclosed rendering an intermediate product containing medicinal cannabis into a fatty foodstuff.

[0061] Preferred fatty foodstuffs are cacao butter and chocolate, other fatty food stuffs include yet are not limited to coconut butter and tallow.

[0062] The product is characterized by a controlled amount of medicinal cannabis per unit volume of fatty foodstuff that does not spoil at room temperature that is relatively solid (non-liquid) at room temperature, and that melt or soften at body temperature. Another aspect of the product is the use of a mold that also acts as a package where individual dosages of medicine are individually dispensed.

[0063] The medicinal cannabis infused fatty foodstuff base material may be used to make medicinal products such as chocolate, suppositories, rubs, or salves.

[0064] Room temperatures range from about 65 to 75° F. (18.33 to 23.89° C.); the melting temperature of a product consistent with this invention is above 75° F. (23.89° C.).

[0065] Butter and milk fat products, food stuffs that spoil if left at room temperature, and oils that are liquid at room temperature are not characteristic of the medicinal product consistent with this invention.

[0066] A product consistent with this invention may be fabricated from various base materials that include raw cannabis, or certain pre-processed intermediate products that contain medicinal cannabis.

[0067] Products consistent with this invention may be used to make medicinal products such as chocolate, suppositories, rubs, or salves.

[0068] Theobroma Cacao, aka Cacao butter, infused with Medicinal cannabis is a preferred example of such a product. Cacao butter is well suited for making chocolate, suppositories, rubs, or salves; the invention is not limited to the use of cacao butter, however. Cacao butter is rich in natural lipids (fats) and melts easily into an oil.

[0069] Cacao butter is preferred because it melts around 90° F. (32.22° C.), below body temperature yet well above room temperature; coconut butter melts around 78° F. (25.56° C.), and tallow melts around 104° F. (40° C.).

[0070] The best mode of the package mold is a blister pack containing a plurality of voids/receptacles of desired sizes each used as a storage receptacle for pills. One part of a blister pack is a plastic or poly-carbonate tray, and each void/receptacle is called a blister. Once filled the blister pack is an open tray of individual dosages of medicinal fatty foodstuff. Since the fatty foodstuff contains a pre-determined amount of medicine per unit volume and since the voids/receptacles are of known sizes, each void/receptacle contains a precise amount or dosage of medicine after they are filled. Blister pack trays are the preferred embodiment of a mold tray is a tray used to mold and package the medicinal fatty foodstuff. FIGS. 3-9 show mold trays in various states and configurations.

[0071] Typically the mold trays containing the fatty foodstuff are flash cooled by simply placing them in a freezer; alternatively cooling may be performed in a regenerator, at room temperature, or by using fans. Once cooled the molds are sealed on the open side of the mold. Various types of materials and methods may be used to seal the molds. The best mode for sealing is by using a cover with a food grade adhesive. Other sealing mechanisms may also be employed and include yet are not limited to ultrasonic bonding, and heat bonding.

[0072] Preferred blister packs for this purpose are of the type that usually contains pills; one example is Cold-Seal Blister Cards manufactured by Onnen Company Inc. [19]. These blister packs have two parts, a poly-carbonate or plastic tray with a plurality of voids/receptacles commonly called “blisters”, and a cover with a peel and stick FDA approved adhesive. The cover is made of a durable card stock, contains a left side and right side, and is designed to be folded in half. The right side is covered by wax paper, remove the wax paper
and a plurality of holes in the card stock is exposed. Remove the wax paper from the right side of the cover and an FDA approved adhesive surface is exposed. Typically pills are inserted into the voids/receptacles in the tray. Drop the blisters through the holes in the right side of the cover; a flat surface on the tray sticks to some of the adhesive on the right side of the blister pack tray holding it in place. Fold the left side of the cover over the right side of the cover sealing the top portion of the blister tray within the package. This seals the receptacle openings, and the plastic blisters protrude out from the bottom of the blister pack card. The top of the blister pack is now a flat surface that completely covers the blisters.

Such a blister pack utilized as a mold tray and then sealed is a preferred embodiment of the invention. Instead of using a separate mold to make the medicine and then placing the medicine into the blister pack and sealing, the blister pack tray is used as a mold and as a distribution package where individual doses of the medicinal fatty foodstuff may be individually and independently accessed (dispensed).

The mold is now a shipping and dispensing package, or package mold, where each void or receptacle contains a known amount of medicinally infused fatty foodstuff with a known amount or dosage of medicine. Simply break the seal above one of the filled voids/receptacles and a single dose of your medicine may be accessed. Since one of the preferred embodiments of the medicinally infused fatty foodstuff is chocolate infused with medicinal cannabis, a patient has easy access to medicinal chocolate without worrying about consuming too much or too little. The same is true for suppositories where medicinal cannabis is infused into cacao butter.

Minimal essential steps in preparing the package mold are: Fill voids/receptacles in the mold tray with a fatty foodstuff with a known concentration of medicine per unit volume: Seal the mold tray. The cooling step is desirable to prevent individuals from spilling worrying about consuming too much or too little. The same is true for suppositories where medicinal cannabis is infused into cacao butter.

Minimal essential steps in preparing the package mold are: Fill voids/receptacles in the mold tray with a fatty foodstuff with a known concentration of medicine per unit volume: Seal the mold tray. The cooling step is desirable to prevent individuals from spilling worrying about consuming too much or too little. The same is true for suppositories where medicinal cannabis is infused into cacao butter.

Seals may also be made of various materials that include yet are not limited to plastic, Mylar, paper, cardboard, or metal foil.

The mold trays may be filled by various means, including yet not limited to injection, extrusion, ladling, spooning, or simply by pouring into the mold. The tray may also be vibrated to even out or remove air bubbles from the fatty foodstuff in each receptacle. Then excess material, spill, or splatter on the top surface of the tray may be removed by wiping.

During the molding process a medicinal fatty foodstuff introduced into the mold tray(s) conforms to the shape of the receptacles in the mold tray. When cooled the fatty foodstuff solidifies.

The main attribute of the invention is a controlled amount of medicinally infused fatty foodstuff per unit volume that is molded into a package that also acts as a distribution and dispensing package of a known amount of medicine per receptacle in the mold.

Specific concentrations of various cannabinoids may be rendered into a specific volume of fatty foodstuff. For example, an extract containing predominantly tetrahydrocannabinol ($\Delta^2$-THC) may be rendered into a specific volume of chocolate producing a medicinal with maximum psychoactive effect. In another example a mixture of tetrahydrocannabinol ($\Delta^2$-THC) and cannabidiol (CBD) in specific ratios could be rendered into a fatty foodstuff producing a medicinal with a balance of psychoactive and body effects.

Cannabis extracts contain a combination of cannabinoids and other materials including flavonoids, and waxy plant materials. Preferred extracts contain about 56% cannabinoids; in this instance 100% of the cannabinoids contained within the extract constitute 56% of the extract. Of that 100% of cannabinoids 33.33% might consist of tetrahydrocannabinol ($\Delta^2$-THC), 33.33% might contain cannabidiol (CBD), and 33.33% might contain other cannabinoids. Various combinations of cannabinoids may be contained within an extract from a certain type of cannabis plant, and extracts from different cannabis strains may be mixed to produce an extract with known amounts of cannabinoids per unit volume of the combined extract. Mixing extracts from known plant strains or cannabis extracts that have been analyzed in a laboratory provide a method for controlling the amount of tetrahydrocannabinol ($\Delta^2$-THC), cannabidiol (CBD), and other cannabinoids in the combined extract.

Concentrations of cannabinoids contained within the fatty foodstuff are controlled by knowing the concentration of cannabinoids in the extract, the volume of the extract, and the volume of the fatty foodstuff. Ratios of cannabinoids of interest include yet are not limited to:

- A high percentage of tetrahydrocannabinol ($\Delta^2$-THC) as compared to other cannabinoids, where more than 80% of cannabinoids in an extract consists of $\Delta^2$-THC.
- A mixture of tetrahydrocannabinol ($\Delta^2$-THC), and cannabidiol (CBD) in desired ratios.
- An equal percentage of tetrahydrocannabinol ($\Delta^2$-THC), and cannabidiol (CBD).
- A mixture of tetrahydrocannabinol ($\Delta^2$-THC), cannabidiol (CBD), and other cannabinoids in desired ratios.
- Two or more extracts from different plant material may be mixed forming a cannabis extract with an average proportion of the various cannabinoids per unit volume of extract. For example if two extracts of the same volume were mixed where cannabinoids in a first extract consisted of 95% of all cannabinoids were $\Delta^2$-THC and 5% of all cannabinoids were CBD, and where cannabinoids in the second extract consisted of 35% $\Delta^2$-THC, 35% consisted of CBD, and 30% consisted of other cannabinoids; the combined extract would contain: (95+35)/2 $\Delta^2$-THC; (5+35)/2 CBD; and 30/2 other cannabinoids; or 65% $\Delta^2$-THC; 20% CBD; and 15% other cannabinoids.

Example 2 of Mixing Extracts:

Extract 1: Volume 2 fluid oz comprised of 40% flavonoids & waxy materials: 60% total cannabinoids (95% of total cannabinoids are $\Delta^2$-THC, and 5% of total cannabinoids are CBD)

Extract 2: Volume 4 fluid oz, comprised of 40% flavonoids & waxy materials: 60% total cannabinoids (58% of total cannabinoids are $\Delta^2$-THC, and 42% of total cannabinoids are CBD)

Mixed cannabinoid content: Volume 6 fluid oz: 

$$0.03333 \times 180 + 0.66666 \times 180 = 120$$

$\Delta^2$-THC;
Please note that the extracts do not consist of 100% cannabinoids, in the example above only 60% of the extracts consist of cannabinoids and 40% of the extracts above consist of flavonoids and waxy materials. Please also note that the calculations above have been normalized to a total cannabinoid content of 100%.

Therefore the total content of the mixed extract in Example 2 are 40% flavonoids and waxy materials; and 60% total cannabinoids (70.34% 0.6) Δ₂⁹-THC and (29.66% 0.6) CBN=40% flavonoids and waxy materials; and 42.204% Δ₅-THC: 17.795% CBN. This means that the 6 fluid ounce mixed extract contains (6*0.42204) fluid ounces of Δ₂⁹-THC; and (6*17.795) fluid ounces of CBN=2.53 fluid ounces of Δ₅-THC; and 1.07 fluid ounces of CBN. Extracts of this nature allow foodstuffs with crafted amounts of specific cannabinoids in specific proportions to be fabricated.

BRIEF DESCRIPTION OF THE MANY VIEWS OF THE DRAWINGS

FIG. 1 Shows Basic Cannabinoid Structures

THCA-A (THC acid), Decarboxylation is the loss of CO₂ from a molecular structure; when THCA-A decarboxylates the psychoactive substance Δ₂⁹-THC is formed; Δ₁⁹-THC is depicted in FIG. 1.

CBN (cannabinol) is also depicted; CBN is formed by degeneration of Δ₂⁹-THC.

CBDA (cannabidioolic acid) and CBD (cannabinol) are also depicted in FIG. 1. When CBDA is decarboxylated CBD is formed.

Since CBD may be transformed into Δ₂⁹-THC, FIG. 1 also depicts that this Transformation relates to a small change in chemical structure.

Notes regarding the chemical formula and molecular weight of depicted cannabinoid structures:

CBD and Δ₂⁹-THC have the identical Chemical Formula C₂₁ H₂₂ O₂ & Molecular Weight 314.5.

CBD has a Chemical Formula C₂₂ H₂₃ O₄; Molecular Weight 358.5.

CBN has a Chemical Formula C₂₁ H₂₆ O₂; Molecular Weight 310.4.

FIG. 2 entitled Rendering, Molding, Sealing and Labeling is a flow chart showing the preferred process flow for infusing medicinal cannabis into a fatty foodstuff and packaging the fatty foodstuff into a mold tray.

The first step in this process is to “Render an Intermediate Product containing Medicinal Cannabis into a Fatty Foodstuff”; this step infuses and uniformly mixes distributes medicinal cannabis evenly throughout the fatty foodstuff.

The second step is to “Place the Medicinal Fatty Foodstuff In a Package Mold”; in this step voids in the mold tray are filled with the medicated fatty foodstuff.

The third step in the process is to “Vibrate the Filled Package Mold”; here the mold or molds are vibrated, the vibration even out the fatty foodstuff and removes any bubbles of air that may have been entrapped in the fatty foodstuff.

The fourth step is to “Chill the Filled Package Mold”; chilling the filled package mold causes the fatty foodstuff to solidify from a liquid into a solid; this step takes 10-15 minutes when a freezer is used.

The fifth step in the process is to “Seal the Filled Package Mold”; in this step seals any openings in the package mold containing that the fatty foodstuff in the package mold.

The sixth and final step is to “Label the Package Mold”; in this step the package mold is labeled with the dosage of medicinal cannabis contained in each receptacle of the package mold. The label may also state the non-medicinal ingredients in the fatty foodstuff.

FIG. 3 is entitled Perspective Views of an Empty Mold Tray. FIG. 3 shows a Top View of an Empty Mold Tray, a Length Wise Side View of an Empty Mold Tray, and a Width Wise Side View of an Empty Mold Tray. The mold tray MT has a plurality of voids or receptacles R, each receptacle R has a width W, a length L, and a depth D. The mold tray MT has a Width WT and a length LT. The Top View looks directly into the receptacles R, the Length Wise Side View shows the mold tray turned on its side with the longer depicting the longer side view of the mold tray MT. There are 20 receptacles R in this figure depicted as a series of black rectangles inside of the mold tray MT; some not all are identified with the letter R, to simplify the drawing.

FIG. 4 is entitled Perspective Views of a Filled Mold Tray. FIG. 4 shows a Top View of a Filled Mold Tray, a Length Wise Side View of a Filled Mold Tray, and a Width Wise Side View of a Filled Mold Tray. The mold tray MT has a plurality of voids or receptacles R, each receptacle R has a width W, a length L, and a depth D. The mold tray MT has a Width WT and a length LT. The Top View shows the same mold tray MT as depicted in FIG. 3, here however the receptacles R are filled, depicted in dark gray. There are 20 receptacles R in this figure depicted as a series of black rectangles filled with dark gray inside of the mold tray MT; some not all are identified with the letter R to simplify the drawing. The mold tray is filled with a medicinal fatty foodstuff containing a known concentration of medicine per unit volume.

FIG. 5 is entitled A Filled Mold Tray and Cover. A filled mold tray MT is depicted with gray (filled) receptacles R and mold tray width WT is shown. A cover CV is depicted below the mold tray MT, the cover CV is the same size as the mold tray MT and is depicted with a series of dashed rectangles, 20 in all these are breakthroughs B, simply break the seal and push through a single controlled dosage of medicinal fatty foodstuff, i.e. a single piece of chocolate containing medicinal cannabis. To simplify the drawing all breakthroughs are not identified with a letter B.

FIG. 6 is entitled A Cover being installed on a Mold Tray. A side view and cover CV of a mold tray MT are shown in the top of the drawing. The mold tray has a series of receptacles R, arrows depict that the cover CV is placed on top of the mold tray where it is sealed in place. The figure in the bottom of FIG. 6 is identical to the cover CV of FIG. 5, here the cover CV has already been installed on the mold tray MT.

FIG. 7 is entitled A Card Designed to Receive a Blister Pack. The card CD has a total width of WC, a fold FLD in the middle. The card has two halves the right side (shaded light gray) is coated with a food grade adhesive FGA and has a series of 20 rectangular holes H (shown as a black rectangle with a white opening) of width WP and length LP; the left side is white and has a series of breakthroughs B are shown as rectangles with dashed lines. The holes H are slightly larger than the receptacles of a compatible blister pack. Breakthroughs B are locations where medicine will be accessed. The left side and right side of the card CD each are shown with a width of WC/2, they are ½ the width of the total card width.
WC. To simplify the drawing all 20 rectangular holes H and breakthroughs B are not identified with letters H or B.

FIG. 8 is entitled Perspective Views of a Card Filled with a Mold Tray Blister Pack, a top view and side views are depicted. FIG. 8 shows the same card CD shown in FIG. 7 here however a filled mold tray MT with receptacles R are attached to the card CD. Since the holes (depicted in FIG. 7) are larger than the receptacles R in the mold tray MT, the receptacles R drop through the card, a portion of the bottom of the mold tray MT contacts a portion of the food grade adhesive FGA retaining the card in place. Also depicted is the width W of the mold tray MT and areas where individual doses of medicinal fatty foodstuffs may be broken through B the package after assembly. The fold FLD is also depicted. The side view shows that the left side of the blister pack card CD is being folded over, a thick black arrow shows the direction of the folding operation: the left side of the blister pack card is folded over the right side of the blister pack card until the left side makes contact with exposed food grade adhesive FGA on the right side of the card CD. This operation completely seals the blister pack mold tray.

FIG. 9 entitled Perspective Views of a Complete Blister Pack Mold Tray Card. Shows a top view of a complete blister card CD and a side view of the complete blister card CD. The top view shows the card CD, and breakthroughs B, each breakthrough is an area where individual doses of medicinal fatty foodstuffs may be broken through B the package after assembly; FIG. 9 shows a series of 20 breakthroughs B as rectangles with dashed lines. The Side view shows the card CD, and the receptacles R protruding from the bottom of the blister card CD. The only portion of the mold tray visible are the receptacles R.

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[0135] [20] Related Provisional Patent Application #61/401,824 by the same inventor incorporated by reference into this specification.

[0136] [21] Marketing literature for a blister pack or “blister card” is manufactured by Onnen company used for packaging pills, http://www.onnencompany.com/blister_cards.htm

1. The process of rendering a known amount of a medicinal substance into a known volume of fatty foodstuff that does not melt or spoil at room temperature, and melts or softens at body temperature comprising: a) melting a known volume of fatty foodstuff by heating the fatty foodstuff; b) introducing an intermediate product containing a known amount of cannabinoids into the fatty foodstuff; and c) mixing the fatty foodstuff and intermediate product.

2. The process of claim 1 further comprising: a) introducing said fatty foodstuff containing a known amount of medicine per unit volume of the fatty foodstuff into receptacles of a mold tray; b) sealing the mold tray forming a package; and c) labeling said package.

3. The process of claim 2 where said intermediate product is a cannabis extract.

4. Claim 3 where said fatty foodstuff is chocolate.

5. Claim 3 where said fatty foodstuff is cacao theobroma.

6. Claim 4 where said fatty foodstuff contains cannabinois or medicinal cannabis extract.

7. Claim 5 where the said fatty foodstuff contains cannabinoids or medicinal cannabis extract.

8. Mixing two or more separate cannabis extracts with known concentrations of various cannabinoids forming a cannabis extract with an average proportional concentration of the various cannabinoids per unit volume of the extract.

9. A product made by the process of claim 1 comprising a fatty foodstuff infused with a known concentration of medicinal cannabis per unit volume of the fatty foodstuff, said fatty foodstuff does not melt or spoil at room temperature, and melts or softens at body temperature.

10. The product of claim 9 wherein the product does not contain butter, milk-byproducts, egg, wheat products, or gluten.
11. The product of claim 9 wherein at least eighty percent of the cannabinoids contained within said medicinal cannabis consist of the cannabinoid tetrahydrocannabinol.

12. The product of claim 9 wherein at least ten percent of the cannabinoids contained within said medicinal cannabis consist of the cannabinoid cannabidiol.

13. The product of claim 9 wherein at least thirty percent of the cannabinoids contained within said medicinal cannabis consist of the cannabinoid tetrahydrocannabinol and at least thirty percent of the cannabinoids contained within said medicinal cannabis consist of the cannabinoid cannabidiol.

14. The product of claim 9 wherein said medicinal cannabis contains equal amounts of the cannabinoid tetrahydrocannabinol and the cannabinoid cannabidiol.

15. A product made by the process of claim 1 contained within a plurality of receptacles in a mold tray, where openings in said receptacles are closed with a seal forming a package.

16. The product of claim 15 where said package is labeled with the amount of at least one medicinal substance that is contained within the receptacles.

17. The product of claim 16 where the fatty foodstuff is chocolate.

18. The product of claim 16 where the fatty foodstuff is cacao theobroma.

19. The product of claim 17 where said fatty foodstuff contains cannabinoids or medicinal cannabis extract.

20. The product of claim 18 where said fatty foodstuff contains cannabinoids or medicinal cannabis extract.