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SOLID ESSENTIAL OIL CONCENTRATE AND PROCESS OF PREPARING THE SAME

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This invention relates to flavoring and perfuming oils and more particularly to solidified compositions containing such oils.

It is an object of the invention to provide solid compositions which contain essential oils dispersed therein in such manner as to minimize loss thereof by volatilization or oxidation.

It is a further object to provide solid compositions which contain essential oils which compositions are readily and completely dispersible in water.

Still another object is to provide edible solid compositions containing flavoring oils, from which loss of the oil is minimized and which compositions are readily and completely dispersible in aqueous media.

Other objects of the invention will become apparent from the following description and the appended claims.

Solid compositions containing dispersed essential oils in accordance with the present invention are useful in diverse fields of application. The dispersion medium is edible and completely water soluble so that food flaxoring dispersed therein may be added to such food products as gelatin desserts, pudding mixes, cake mixes, dry ice cream mixes, and the like. In the cosmetic field, the products of the present invention provide solid, completely dispersible perfume concentrates for such purposes as bath perfumes, perfumed hair rinses, and the like. By employing essential oils of medicinal value in the solid compositions of the present invention, lozenges, throat tablets and the like may be prepared.

Compositions according to the present invention are prepared by incorporating essential oils into substantially dry molten sorbitol and solidifying the resulting dispersion. It has been found that considerable quantities of the common flavoring and perfuming oils may be emulsified in molten sorbitol to form comparatively stable oil-in-sorbitol emulsions and that when such emulsions are cooled the continuous phase solidifies, producing a solid sol containing the essential oil as dispersed phase in the form of minute droplets, so thoroughly entrapped and coated with the solidified sorbitol that the loss of said oil from the mass by volatilization occurs at a negligible rate. The emulsion may be caused to solidify in any suitable form. For example, it may be cast into rods, tablets, or pellets over a wide range of sizes; or may be chilled in a thin film on a cold roll and scraped off as flakes or ribbons; or may be sprayed into a cold chamber to yield small granules of any desired size. The

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use for which the solidified concentrate is intended will determine which of the many possible solidified forms should be selected in any particular instance.

Preferred solid concentrates made in accordance with the present invention contain from about 5% to about 20% of the dispersed essential oil although it is physically possible to incorporate any smaller amount than 5% if so desired. Furthermore, many of the essential oils may be utilized at levels above 20%, especially if emulsification is assisted by the use of surface active agents as indicated hereinafter, and such more highly concentrated dispersions are included within the scope of the invention.

Among the essential oils from which solid concentrations may be prepared in accordance with the present invention are: oil of peppermint, oil of wintergreen, oil of clove, lemon oil, orange oil, lime oil, oil of cassia, eucalyptol, pine needle oil, terpineol, and the like.

It has been found that surface active agents may be advantageously employed in preparing the oil-in-sorbitol emulsions in manner analogous to their use in preparing emulsions of which one phase is aqueous. In the presence of such agents more oil may be stably dispersed in the melt before solidification, leading to the production of highly concentrated flavoring or perfuming pellets, flakes, and the like.

A particularly useful group of surface active agents for this purpose includes the polyoxyethylene ethers of long chain fatty acid monoesters of the hexitans. The useful surface active agents are not limited to this group, however, as the following, nonlimiting list of agents which may be so employed will indicate:

Glycerol monostearate (commercial, self esterifying, which contains 5% to 10% of sodium or potassium stearate)

Polyoxyethylene stearate containing 20 oxyethylene groups per mol.

Polyoxyethylene ether of sorbitan monolaurate containing 16 oxyethylene groups per mol.

Polyoxyethylene ether of sorbitan monostearate containing 20 oxyethylene groups per mol.

Distearate of polyoxyethylene ether of sorbitol containing 40 oxyethylene groups per mol.

In the above listed oxyethylated surface active agents it is to be understood that any one agent may comprise a mixture of polyoxyethylene ethers of various oxyethylene chain lengths so distributed that the average number of oxyethylene groups per mol is as indicated. Depending

upon the oil being emulsified and the concentration of oil-in-sorbitol desired, the proportion of surface active agent to sorbitol may be varied but, in general, it is preferred to use from about 0.1% up to about 5.0%.

The melting point of the sorbitol may be lowered, if desired, by incorporating small amounts of water therein without deleteriously affecting either the emulsion or the solid sol resulting upon solidification thereof. Excessive proportions of water are to be avoided but it has been found that as much as 5% may be tolerated. Without departing from the spirit of the invention minor amounts of other ingredients such, for example, as sugar, or acidulents may be incorporated in the solidified flavoring composition.

Specific illustrations of compositions made in accordance with this invention and of their utilization are presented in the following examples.

Example I

20 grams of lime oil were added to 200 grams of molten sorbitol containing 2% of water under good agitation to form an emulsion of the oil in molten sorbitol. The dispersion was poured on a glass plate to cool. When partially cooled a portion of the mass was cut into portions of approximately 2 grams each and shaped into pellets. When completely cool, the remainder of the mass was sufficiently brittle that it could readily be broken into irregular pieces. There was no exudation of oil from the solidified mass.

Example II

A lime-gelatin dessert mix was prepared by first mixing together 65 grams of granulated sugar, 11 grams of powdered edible gelatin, 12 grams of corn sugar, 2 grams of powdered citric acid and 3 to 4 drops of a certified green food color solution. Into the package containing the above mixture a single 2 gram pellet of the product of Example I was introduced. Upon dissolving the entire contents of the package in a pint of warm water and allowing the solution to cool there was obtained a gelatin dessert of pleasing taste and appearance.

Example III

20 grams of lemon oil were emulsified into 200 grams of molten sorbitol and the mixture allowed to cool. While still plastic it was shaped into pellets of approximately 2 grams each.

For comparative purposes a number of gelatin dessert mixes over the basic formula of Example II were prepared, half being flavored by 2 gram pellets of the lemon oil concentrate of Example III (method A) and the other half by the thorough incorporation of an equivalent amount (0.18 gram) of lemon oil directly in the powdered ingredient (method B). In finished desserts made by dissolving the freshly prepared dessert mixes in warm water and allowing them to cool until jelled there was no perceptible difference in flavor between those flavored by method A and those flavored by method B. After aging for 20 days in unsealed packages, however, the mixture flavored by method B had lost much of the characteristic lemon flavor and desserts prepared therefrom were vastly inferior to those prepared from mixes flavored by method A which were not significantly different in taste from desserts prepared from the freshly made mixes.

Example IV

35 grams of lemon oil was emulsified into a molten mixture of 5 grams of the polyoxyethylene ether of sorbitan monostearate containing 20 oxyethylene groups per mol and 200 grams of sorbitol. Upon cooling a solid sol of lemon oil in sorbitol was obtained which could be utilized for flavoring such food products as prepared pudding mixes or the like.

Instead of the 5 grams of polyoxyethylene ether of sorbitan monostearate described in the above examples an equal quantity of the polyoxyethylene ether of sorbitan monolaurate containing 16 oxyethylene groups per mol may be used for the same purpose, or 3 grams of the distearate of the polyoxyethylene ether of sorbitol containing an average of 40 oxyethylene groups per mol. With the purview of the invention, likewise, is the use of mixtures of surface active agents.

Example V

48 grams of spearmint oil were introduced slowly beneath the surface of 200 grams of molten sorbitol under good agitation. The oil-in-sorbitol emulsion so formed was thinly spread on a cold glass slab and cross scored to form an approximately 16 mesh grid. When solidification was complete the mass scraped from the plate broke along the score marks into flakes.

Example VI

5 grams of pine needle oil was emulsified into 100 grams of molten sorbitol and the mixture spread out on a cold plate to a depth of approximately one-sixteenth of an inch. While still plastic the layer was scored to form an approximately 16 mesh square grid. The material quickly solidified to a brittle mass and when scraped from the plate it broke along the score marks to yield a plurality of tiny cubes.

Example VII

A mixture consisting of 280 parts of sodium sesquicarbonate, 140 grams of sodium lauryl sulfate and 10 grams of the product of Example VI comprises a satisfactorily perfumed preparation of bath salts of the bubble bath type.

The incorporation of other oils and the use of other emulsifying agents than those specifically mentioned herein come equally within the scope of the present invention, and many other uses of the solidified essential oils made in accordance therewith will readily suggest themselves to those skilled in the art.

What is claimed is:

1. A composition comprising a solid sol wherein the continuous phase consists essentially of sorbitol and the disperse phase is an essential oil.

2. A composition comprising a solid sol as in claim 1 wherein the content of essential oil in the said sol lies between the inclusive limits of about 5% and about 20%.

3. A composition comprising a solid sol containing a continuous phase consisting essentially of sorbitol, a disperse phase consisting of an essential oil, and from about 0.1% to about 5% of a surface active agent.

4. A composition as in claim 3 wherein the surface active agent is the polyoxyethylene ether of a long chain fatty acid monoester of sorbitan.

5. The process of preparing a solid essential oil concentrate which comprises the emulsification of an oil in molten sorbitol, and cooling the mixture to form a solid sol of oil in sorbitol.

6. The process of claim 5 wherein the emul-

sification is carried out in the presence of from 0.1% to 5.0% of a surface active agent.

7. The process of claim 5 wherein the content of essential oil in the emulsion lies between the inclusive limits of 5% and 20%.

8. The process of claim 6 wherein the surface active agent is the polyoxyethylene ether of a long chain fatty acid monoester of sorbitan.

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