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STABILIZED FLAVORING CONCENTRATES

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ABSTRACT OF THE DISCLOSURE

The present disclosure sets forth the use of glyceryl abietate and particularly triglyceryl abietate combined with orange oil terpene fractions to obtain a uniform anhydrous combination readily emulsified with gum arabic and combined with water and sugar syrup to form an orange drink.

The present invention relates to a stabilized flavoring concentrate and it particularly relates to a stabilized flavoring concentrate of an essential oil.

Although not limited thereto and having ready applicability to various citrus oils, the present invention will be particularly described in its application to orange oil fractions and particularly terpene fractions thereof.

In making the orange oil emulsions or drinks it is usually necessary to include therein various types of brominated oils such as brominated sesame seed oil to prevent separation and to give the oil the same specific gravity as the aqueous medium in which it is placed or suspended.

It has been particularly found that it is necessary that a brominated oil be utilized which has a higher specific gravity than one, so that the resultant combination will have a specific gravity of one plus and will not readily separate or form a ring or scum, when included in aqueous mixtures.

It is among the objects of the present invention to provide a flavoring concentrate of the character described which may be converted into an emulsion for addition to aqueous liquids and readily stirred therein to form various types of flavored drinks and at the same time eliminate the use of brominated oils.

A particular object of the present invention is to provide a novel stabilized essential oil emulsion or concentrate which can be readily added without difficulty to sugar solutions up to 10–15% concentration and will not ring or separate therefrom.

Still further objects and advantages will appear in the more detailed description set forth below, it being understood, however, that this more detailed description is given by way of illustration and explanation only and not by way of limitation, since various changes therein may be made by those skilled in the art without departing from the scope and spirit of the present invention.

In accomplishing the above objects it has been found that a glyceryl abietate and particularly a triglyceryl abietate may be most conviently combined with essential oil terpene fractions and particularly with orange oil terpene fractions to achieve a uniform and anhydrous composition which may be readily emulsified with gum arabic and combined with water and particularly with a sugar solution to form a flavored drink and particularly an orange drink.

It has been found most satisfactory to use the terpenes derived from orange or other essential oils which have a specific gravity of between 0.8 to 0.9 and desirably about 0.84.

These terpenes are derived by fractional separation or distillation of the orange or other essential oils and after they have been combined with the glyceryl abietate they

may then be combined with a powdered gum such as gum arabic.

The present invention is particularly directed to the concentrate of orange terpenes and glyceryl abietate. Generally these orange terpenes are derived by distillation of orange oil and constitute about 80 to 85% of the orange oil with the residue being terpeneless concentrated orange oil.

This concentrate which may contain 100 to 200 parts by weight of the orange terpene and 250 to 300 parts by weight of the glyceryl abietate or ester gum then may be homogenized with water and gum arabic to form a ringless, cloudy neutral emulsion using about 50 to 75 parts by weight of the concentrate, 100–200 parts by weight of the gum arabic and about 200–400 parts of water.

This will produce an emulsion which may be added in the amount of about ½ to 2 ozs. to a gallon of sugar syrup desirably about 25–40° Baumé.

This sugar syrup then may be combined with 3 to 6 times its weight of water to form the final drink.

The flavoring is desirably added to the concentrate either in the form of an artificial imitation oil in the amount of ½ to 2 parts to each 300–500 parts of the combination of orange terpenes and ester gum.

Desirably, the concentrate also should have added thereto about 1 to 3% of an anti-oxidant.

The cloudy neutral emulsion which is produced from the concentrate by homogenization with water and gum arabic should contain benzoate of soda as a preservative agent.

The present invention is particularly directed to the initial concentrate—flavored or unflavored—and which is devoid of brominated oil and which nevertheless will produce an oily flavoring material which will not separate.

Example I

As a typical concentrate it is possible to utilize orange terpenes as follows (in parts by weight):

Ingredient	Range	Preferred
Orange terpenes	2,000 to 3,500	2,600
Glyceryl abietate	3,500 to 5,000	4,540
Antiocidant	1 to 8	5

This composition is desirably prepared by dissolving the orange terpenes in a water jacketed kettle, followed by stirring in the abietate until it is dissolved. Stirring is continued for about 15 minutes or more and then the antioxidant may be added. If desired, 15 to 25 parts of gum arabic may also be included.

This combination then may be homogenized with water and gum arabic to produce an emulsion.

This emulsion may be added in the amount of ¼ to 2 ozs. to a gallon of 32° Baumé sugar syrup to produce a syrup for combination with water to form a drink. The concentrate may be flavored in accordance with the particular flavor desired, whether an orange drink, a lemon drink, a lime drink or a pineapple drink, as well as other flavors.

The final drink may be preserved by adding 1/10 to 1% of benzoate of soda to the emulsion.

Example II

As another example in preparing a concentrate, 125 to 175 parts of orange terpenes may be combined with 200 to 300 parts of glyceryl abietate, preferably steam deodorized and .3 to .6 part of an antioxidant such as butylated hydroxy anisol, all parts by weight. If desired, ¾ to 3 parts by weight of gum arabic may also be added.

Desirably about 150 lbs. of the orange terpenes are placed in a water jacketed kettle with or without heating and the finely ground or flaked ester gum is stirred in until dissolved. Then the antioxidant is added. Finally gum arabic may be stirred in until a complete solution is achieved, if it is to be added.

In the preferred composition 150 parts by weight of the orange terpenes are used for each 225 to 300 parts of the ester gum. If desired, 1 to 2 parts of gum arabic may be added. A small amount of flavoring may then be added in the amount of ½ to 2 parts by weight.

To produce a satisfactory ringless, cloudy, neutral emulsion for addition to a 25° to 35° Baumé sugar syrup, this concentrate may then be combined with about 30–40 parts of powdered gum arabic for each 50–70 parts of the concentrate followed by the addition of about 200–250 parts of water.

Finally, about 5–10 parts by weight of a 25% solution of benzoate of soda is added to give a uniform liquid which may be passed through a homogenizer from two to five times, and desirably three times, to give a uniform emulsion.

This emulsion may be added in the amount of ½ oz. to 3 ozs. to each gallon of sugar syrup to form a base syrup for addition to 4 to 5 gals. of water to form the final drink.

Example III

The following proportions and steps may be used to give a ringless, cloudy neutral emulsion.

Ingredient	Range	Parts by Weight
(a) Concentrate of Examples I or II	50 to 70	60
(b) Powdered gum arabic added with stirring until dissolved	30 to 40	36p
(c) Water; stir for 25 minutes	200 to 250	232
(d) Powdered gum arabic with stirring until dissolved	75 to 100	93
(e) Water with stirring	75 to 90	86
(f) Powdered gum arabic with stirring until dissolved	40 to 60	43
(g) Benzoate of soda 25% solution with stirring	2 to 10	7

This composition is passed through a homogenizer three times and color and flavor may be added to the emulsion as formed if it has not been previously added to the concentrate. Gum arabic may be put in at one time but it is preferred to put it in in stages.

Example IV

As an alternative method of preparing an emulsion using the same steps as above the following formulation may be employed.

Ingredient	Range	Preferred
(a) Concentrate of Examples I or II	80 to 100 lbs.	90 lbs.
(b) Powdered gum arabic with stirring to dissolve.	45 to 65 lbs.	55 lbs.
(c) Water with stirring	30 to 50 gal.	40 gal.
(d) Powdered gum arabic with stirring	100 to 150 lbs.	137 lbs.
(e) Water with stirring	10 to 20 gal.	15 gal.
(f) Powdered gum arabic with stirring	50 to 75 lbs.	64 lbs.
(g) Benzoate of soda 25% solution with stirring.	1 to 2 gal.	1¼ gal.

This is desirably run through a homogenizer 2 to 4 times. Color and flavor may be added to the concentrate or to the emulsion before homogenization.

Example V

Although desirably the neutral emulsion is combined in the amount of ½ to 3 oz. per gal. of a 32° Bé. sugar syrup which can be then mixed with 4 to 5 times its weight of water to form the final drink, the final drink may also be made directly from the concentrate in the following manner.

Ingredient	Range	Preferred
(a) Concentrate of Examples I or II	½ to 1 oz.	¾ oz.
(b) Citric Acid 50%	1 to 2 fl. ozs.	1½ fluid oz.
(c) Sugar syrup 32° Bé.	1 to 2 gal.	1 gal.

This drink may be flavored by adding concentrated orange, lime or pineapple essence and also color to the final drink or to the concentrate.

The drink may be preserved by adding 1/10% of benzoate of soda or .05% methyl or propyl parahydroxybenzoate.

Desirably in the above combinations there should be about twice as much gum arabic as orange terpenes and the ester gum of glyceryl abietate should be about 2 to 4 times the weight of the orange terpenes.

The important feature of the present invention resides in the fact that brominated oil may be altogether eliminated with the production of a ringless drink.

If desired, orange juice may be added to the final syrup or emulsion in the amount of 5 to 20% and the final emulsion, syrup and drink will be non-scumming and non-ringing, and will be stable in glass, will not tend to oxidize, and will have a shelf life of 40 to 90 days and up to 6 months without losing or deteriorating in its flavor.

Furthermore, the flavor will be retained without change from 0° C. or 32° F. up to 75° C. and 150° F.

The present combination is particularly suitable for addition to carbonated beverages.

It is particularly valuable in that it is stable against separation and does not require expensive orange oil which normally must be present in the amount of 0.025%.

A surprising effect is that although the drink has a specific gravity of about 1.05 and the terpenes have a specific gravity of about 0.84 there will be no separation of the oil or terpenes.

In lieu of the antioxidants above disclosed, it is also possible to use butylated hydroxy toluene, propyl gallate or nordihydroguaiarelic acid.

The preferred ester gum is glyceryl triabietate although glyceryl diabietate may also be used in smaller quantities. These abietates should be prepared by steam stripping.

The preferred concentrate is an anhydrous thick viscous pourable oil containing less than 5% of water and it is usually substantially flavorless.

While there has been herein described a preferred form of the invention it should be understood that the same may be altered within the scope of the appended claims.

Having now particularly described and ascertained the nature of the invention, and in what manner the same is to be performed.

What is claimed is:

1. A concentrate devoid of brominated oils for preparing citrus drinks comprising a substantially anhydrous mixture of essential orange oil terpenes and glyceryl abietate, said essential oil terpenes being a fraction of essential orange oil and having a specific gravity of 0.8 to 0.9, and said concentrate containing between 100 to 200 parts by weight of orange oil terpenes and 250 to 300 parts by weight of triglyceryl abietate.

2. A concentrate devoid of brominated oils for preparing citrus drinks comprising a substantially anhydrous mixture of essential orange oil terpenes and glyceryl abietate with added gum arabic, said essential oil terpenes being a fraction of essential orange oil and having a specific gravity of 0.8 to 0.9, and said concentrate containing between 100 to 200 parts by weight of orange oil terpenes and 250 to 300 parts by weight of triglyceryl abietate.

3. A concentrate devoid of brominated oils for preparing citrus drinks comprising a substantially anhydrous mixture of essential orange oil terpenes, glyceryl abietate

and an antioxidant, said essential oil terpenes being a fraction of essential orange oil and having a specific gravity of 0.8 to 0.9, and said concentrate containing between 100 to 200 parts by weight of orange oil terpenes and 250 to 300 parts by weight of triglyceryl abietate.

4. A concentrate devoid of brominated oils for preparing citrus drinks comprising a substantially anhydrous mixture of essential orange oil terpenes, glyceryl abietate, and combining butylated hydroxy anisol as an antioxidant, said essential oil terpenes being a fraction of essential orange oil and having a specific gravity of 0.8 to 0.9, and said concentrate containing between 100 to 200 parts by weight of orange oil terpenes and 250 to 300 parts by weight of triglyceryl abietate.

5. A drink containing the concentrate of claim 1, citric acid and a sugar syrup.

6. A concentrate devoid of brominated oils for preparing flavored drinks comprising 150 lbs. of orange terpenes, 275 lbs. of glyceryl abietate.

7. A ringless, cloudy neutral emulsion containing the concentrate of claim 6 together with water and gum arabic.

8. A ringless, cloudy neutral emulsion devoid of brominated oils containing the concentrate of claim 6, together with water and gum arabic, said water being present in the amount of 318 parts by weight for each 60 parts by weight of the concentrate and the gum arabic being present in the amount of 172 parts by weight for each 60 parts by weight of the concentrate.

9. A fruit drink comprising the concentrate of claim 1, citric acid, and sugar syrup flavored with a concentrated flavor essence.

10. A fruit drink comprising the concentrate of claim 1, homogenized with a solution of gum arabic and a sugar syrup solution.

11. A method of forming a flavoring concentrate devoid of brominated oils which comprises adding to orange terpenes 2 to 3 times its weight of glyceryl abietate.

12. A method of forming a flavoring concentrate devoid of brominated oils which comprises adding to orange terpenes 2 to 3 times its weight of glyceryl abietate, and then combining said concentrate with water and powdered gum arabic followed by homogenization and adding to a sugar syrup.

13. An orange flavored concentrate devoid of brominated oils comprising orange terpenes—150 lbs., glyceryl abietate—275 lbs. and antioxidant—5 ozs.

14. A ringless, cloudy neutral emulsion devoid of brominated oils comprising 60 parts by weight of the concentrate of claim 13, together with 318 parts by weight of water, 172 parts by weight of gum arabic and 7 parts by weight of a 25% solution of benzoate of soda.

15. A method of forming ringless, cloudy emulsions devoid of brominated oils which comprises forming a concentrate of orange terpenes, glyceryl abietate, and then stirring into said concentrate powdered gum arabic and water in successive amounts until an amount of water about 5 times the amount of concentrate and an amount of powdered gum arabic about 3 times the amount of the concentrate has been added, followed by homogenization, said emulsion being added at the rate of ½ to 3 oz. per gal. of a 18° Bé. to 35° Bé. sugar syrup to form a fruit drink base.

16. In an aqueous mixture, an anhydrous concentrate containing 2600 parts by weight of orange terpenes, 4540 parts by weight of triglyceryl abietate, and containing 15 to 25 parts by weight of gum arabic emulsified in the amount of ¼ to 2 ounces in a gallon of 32° Baumé sugar syrup.

17. As an aqueous preparation, a concentrate of 125 to 175 parts by weight of orange terpene and 200 to 300 parts by weight of steam deodorized triglyceryl abietate and ¾ to 3 parts by weight of gum arabic formed into a ringless, cloudy neutral emulsion, and added to 25° to 30° Baumé sugar syrup and homogenized to give a uniform emulsion.

References Cited

UNITED STATES PATENTS

2,893,869	2/1959	Beck	99—78 X
3,227,561	1/1966	Mima et al.	99—11 X

FOREIGN PATENTS

38/3,948	4/1963	Japan.

OTHER REFERENCES

Food Additives Manufacturing Chemist Assn., 1961, p. 55.

A. LOUIS MONACELL, *Primary Examiner.*

M. VOET, *Assistant Examiner.*