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NONFOAMING SHAMPOO

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This invention relates to the manufacture of cosmetic preparations.

It is well known that in spite of the tremendous number of cosmetic preparations now on the market, there has long existed a demand for cosmetic preparations which will both lubricate and nourish the skin and scalp by furnishing and replacing natural oils which are removed by the use of the cosmetic preparations. While oils such as olive oil have been incorporated in cosmetic preparations in an attempt to meet this demand, these oils have been shown to have practically no nourishing action for the skin. Furthermore, many of these oils have a tendency to become rancid upon prolonged exposure to the atmosphere, thereby seriously diminishing the value of cosmetic preparations manufactured therefrom; this is particularly true of cosmetic preparations containing olive oil which has been widely used in the manufacture of cosmetics. There has also been an extensive demand for shampoos and similar cleansing agents for the skin and scalp which develop abundant lather and which do not tend to become rancid upon exposure to the atmosphere. As yet, however, this demand has not been satisfied.

It is an object of this invention to provide improved cosmetic preparations which do not possess any of the above disadvantages.

It is a further object of this invention to provide cosmetic preparations having excellent lubricating and nourishing properties for the skin and scalp and which do not become rancid upon exposure to air.

Another object of this invention is to provide shampoos and other cleansing agents for the skin and scalp which develop abundant lather upon use and which do not become rancid upon exposure to air.

I have found that cosmetic preparations containing rice bran oil or derivatives thereof having substantially the same iodine value as the oil possess excellent skin lubricating action; moreover, such cosmetic preparations have been found to be particularly effective for nourishing the skin. Shampoos containing rice bran oil prepared in accordance with my invention have proved to be of excellent quality since they restore to the scalp natural oils which are washed away during the shampoo treatment, thereby lubricating and nourishing the scalp. Generally it may be stated that the presence of rice bran oil in cosmetic preparations has the effect of neutralizing any tendency of the particular cosmetic preparation to remove natural oils from the skin or scalp. Sulfated or saponified derivatives of rice bran oil have the additional advantage that they render the cosmetic preparations with which they are incorporated water-dispersible. This property is of importance since it has been found that water-dispersible cosmetic preparations do not interfere with the normal evaporation of moisture from the skin, and hence aid in maintaining the skin in a normal healthy condition. Moreover, preparations containing saponified rice bran oil have excellent foaming characteristics and do not tend to become rancid even after prolonged exposure to the atmosphere. This behavior is in striking contrast to the behavior of cosmetic preparations containing other soaps possessing good lathering properties, since the presence of these other soaps generally causes the cosmetic preparations to become rancid after being permitted to stand in the air for some time.

Rice bran oil used in accordance with my invention may be obtained by pressing either rice or rice bran. It has a yellowish color and a specific gravity varying between about 0.920 and about 0.925. Its saponification value ordinarily ranges from about 185–188, and the oil normally contains between about 5% and about 10% of free fatty acids. Rice bran oil ordinarily contains from about 3% to about 5% unsaponifiable material; this unsaponifiable material comprises largely sterols and it is believed that the sterol content of rice bran oil is partially responsible for the outstanding properties possessed by this oil which render it particularly useful in the manufacture of cosmetic preparations.

One of the surprising properties of this oil is that while it possesses a relatively high iodine value ranging from about 95 to 110, it is not easily oxidized. This property is well illustrated by the fact that olive oil, which has a lower iodine value than rice bran oil and which incidentally is widely used in cosmetic preparations, develops a temperature of 295° C. in 288 minutes by the McKay oxidation test, whereas rice bran oil develops a temperature of only 255° C. in 548 minutes. These tests indicate that under similar conditions rice bran oil will oxidize only about one-half as fast as olive oil, and hence that rice bran oil has much less tendency to become rancid upon exposure to air than has olive oil. This property of rice bran oil, it will be evident, makes it highly suitable for use in the manufacture of cosmetic preparations since it is desirable to employ ingredients in compounding the preparations which have relatively little

tendency to become rancid even after prolonged standing.

The sulfated and saponified derivatives of rice bran oil may be prepared in the usual manner; for example, sulfated rice bran oil may be prepared by reacting approximately 4,000 parts of oil with 1,200 parts of concentrated sulfuric acid, washing, settling and recovering the sulfated oil in any suitable manner. If desired, other sulfatable oils such as teaseed oil or olive oil, or unsulfatable oils such as mineral oil may be incorporated in the rice bran oil prior to sulfation in order to impart special properties to the sulfated rice bran oil product. Saponified rice bran oil may be prepared in the usual manner by treating rice bran oil with a strong alkali such as caustic soda or caustic potash.

I have found that rice bran oil and its sulfated or saponified derivatives may be employed to advantage in the manufacture of a wide variety of cosmetic preparations; thus preparations such as shampoos, skin oils, solid emulsions such as cold creams, shaving creams, vanishing creams, tissue creams and the like, lipsticks, hair oils and tonics, face soaps, etc., may advantageously contain rice bran oil or its sulfated or saponified derivatives. In every case I have found that cosmetic preparations manufactured in accordance with my invention possess highly improved skin nourishing action, since the natural oils of the skin and scalp are not appreciably removed by treatment of the skin or scalp with these preparations. As is well known, many of the cosmetic preparations at present employed, particularly shampoos, have the serious disadvantage that the natural oils of the skin or scalp are removed and the skin and scalp are thereby detrimentally affected by treatment therewith.

Sulfated rice bran oil has been found to be particularly useful in the preparation of non-foamy shampoos. I have found that these shampoos can take up considerable amounts of both water and oils without losing their homogeneity, thereby permitting the alteration of the compositions of the shampoos as may be desired. Furthermore, because of the ability of the shampoos to take up oil and water, a much more thorough cleansing of the scalp may be effected. Shampoos prepared from saponified rice bran oil, on the other hand, develop an abundant lather upon use; moreover, these shampoos do not tend to become rancid after exposure to the air.

It will be evident from the varied character of the cosmetic preparations to which rice bran oil and its sulfated or saponified derivatives may be added in accordance with my invention that the amount of these substances which should be employed will vary widely depending upon the particular preparation. Furthermore, these substances may be compounded with many other substances, such as oils, waxes, phosphates, phosphatides and the like, in order to produce the desired type of cosmetic preparation. Reference is made to the examples hereinafter given in which typical cosmetic preparations made in accordance with my invention are described and from which the scope of my invention will be evident to those skilled in the art.

The following examples are illustrative of my invention. Amounts are given in parts by weight.

Example I

50 parts of rice bran oil and 50 parts of paraffin oil were mixed with 20 parts of concentrated sulfuric acid and the mixture agitated at a temperature of about 20° C. for about 2 hours. The reaction mass was then washed with a solution of 20 parts of sodium chloride in 300 parts of water. After this washing operation the mass was neutralized to an acidity of about 0.3% and permitted to settle at a temperature of about 50° C. for 16 hours. At the end of this time the aqueous layer which separated was withdrawn, the product cleared by the addition of alkali and the moisture content thereof adjusted to about 50%. The sulfated mass was then permitted to stand at room temperature for about 4 weeks after which it was cooled to a temperature of about 8° C. and filtered. The resulting product was a clear oil and proved to be an excellent non-foamy shampoo; it was capable of taking up considerable quantities of water or oil without losing its homogeneity. Furthermore, when this product was employed as a shampoo, it was found that the scalp retained its natural oils and did not tend to become undesirably dry.

Example II

100 parts of rice bran oil were mixed with 30 parts of concentrated sulfuric acid and the mixture agitated for two hours while maintaining the temperature at about 20° C. The reaction mass was then washed with a solution of 20 parts of sodium chloride in 300 parts of water and neutralized to an acid value of about 0.25%. The neutralized mass was then permitted to settle for 16 hours at 50° C., and the aqueous layer which separated withdrawn. The mass was then treated with alkali to raise the alkali content to 1.5%. This product was permitted to stand for four weeks at room temperature, and was then cooled to 8° C. and filtered. 50 parts of the filtered oil were then mixed with 20 parts of mineral oil and 30 parts of water. The mixture proved to be an excellent non-foamy shampoo and was capable of taking up considerable quantities of water or oil without losing its homogeneity.

Example III

72 parts of filtered sulfated rice bran oil prepared as described in Example II and 28 parts of mineral oil were mixed, whereby an excellent non-foamy shampoo was obtained.

Example IV

15 parts of filtered sulfated rice bran oil prepared as described in Example II were mixed with 25 parts of sulfated castor oil, 5 parts of a white mineral oil and 55 parts of water, whereby a non-foamy shampoo having excellent cleansing properties was obtained.

Example V

4 parts of the sodium soap of rice bran oil, 0.2 part of trisodium phosphate and 95.8 parts of water were mixed. The resulting product was an excellent shampoo which developed an abundant lather upon use and which did not tend to become rancid even after prolonged standing.

Example VI

A skin oil was prepared by blending 80 parts of rice bran oil with 18 parts of paraffin oil and 2 parts of lecithin. This oil imparted a smooth, pleasant, oily feel to the skin upon application thereto and greatly relieved irritation due to chapping or chafing.

Example VII

8.5 parts of beeswax, 8.5 parts of spermaceti, 1 part of cholesterol, 3.5 parts of ozokerite and 50.5 parts of rice bran oil were mixed, the mixture heated until fluid and stirred to render it homogeneous. 28 parts of water were then gradually added to the molten mass with agitation, and the mass permitted to cool slowly and solidify. The product was a smooth, homogeneous mass and proved to be an excellent cold cream.

Example VIII

18 parts of stearic acid, 7 parts of coconut oil, 5 parts of rice bran oil, 14 parts of 38° Bé. potassium hydroxide and 56 parts of water were heated with agitation until no free alkali remained. The mass was permitted to cool until it formed a paste. The product proved to be an excellent shaving cream.

While the above description has dealt chiefly with the preferred embodiments of my invention, i. e., those embodiments relating to the incorporation of rice bran oil or sulfated or saponified derivatives thereof in cosmetic preparations, I do not intend to limit my invention to such embodiments since I have found that any derivative of rice bran oil having substantially the same iodine value as the oil itself may be employed to advantage in accordance with my invention. Thus for example amides prepared by reacting rice bran oil with ammonia or an organic amine may be used, as well as fatty alcohols derived from rice bran oil, the esters and partial esters thereof, e. g., mono or diglycerides of rice bran oil alcohols, and amines prepared from these alcohols.

It will be evident from the above description that my invention permits the production of cosmetic preparations having properties which make them highly desirable for application to the skin or scalp. Because of the pronounced skin nourishing and lubricating action possessed by the products of my invention and because of their property of being substantially stable upon exposure to air, my invention will be of great value to those engaged in the manufacture and sale of cosmetic preparations.

It is to be understood that the term "cosmetic preparation" is employed in a broad sense throughout the specification and claims and is intended to include any preparation capable of beautifying the skin or scalp; thus this term includes preparations such as shampoos, skin oils, shaving creams and the like, as well as preparations such as cold creams, tissue creams and lipsticks.

The term "sulfated" is used in the specification and claims to denote both the unneutralized esters obtained by reacting rice bran oil compounds with a sulfating agent and the products obtained by neutralizing these esters.

The term "rice bran compound having an iodine value substantially the same as that of rice bran oil" is used in the claims to include rice bran oil and derivatives thereof in which the double bonds of the oil are substantially unaltered.

Since certain changes in carrying out the above process and certain modifications in the preparations which embody the invention may be made without departing from its scope, it is intended that all matter contained in the above description shall be interpreted as illustrative and not in a limiting sense.

Having described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. In a process of producing a non-foaming shampoo, the step which comprises sulfating a mixture of a paraffin oil and rice bran oil.

2. A process of producing a non-foaming shampoo which comprises admixing a paraffin oil with rice bran oil, treating the oil mixture with a sulfating agent, washing and neutralizing the sulfated mass.

3. A non-foaming shampoo comprising a sulfated mixture of a paraffin oil and rice bran oil.

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