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COPPER GLUCONATE ORAL DEODORANT COMPOSITION

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This application is a continuation in part of our application filed July 17, 1956, Serial No. 598,241, now U.S. Patent No. 2,894,876, with a higher top ratio of copper gluconate than in the examples of said application.

This invention relates to deodorant compositions containing copper gluconate as the effective deodorant, and has for its object to provide a deodorant composition having as its effective ingredient copper gluconate.

According to our invention copper gluconate is incorporated in oral medium. In its preferred use it is incorporated in mouth wash, toothpaste, tooth powder, or any suitable dentifrice.

Our novel deodorant composition exhibits useful deodorant properties over a wide range of concentrations of the copper gluconate. We prefer to incorporate an amount of copper gluconate which will provide in normal use an average "dose" of from about 0.075 mg. to about 0.5 mg.

We prefer to use in combination with the copper gluconate a glyceride fat or oil of small particle size (i.e., up to 5 microns). Such a glyceride may provide additive deodorant effects in respect of the degree and the type of deodorant action produced. The glyceride is preferably incorporated into the composition in the form of an emulsion. The carrier composition of our invention otherwise will contain the ingredients usual for such compositions.

The following examples of deodorant compositions of our invention illustrate the novel products that may be obtained therefrom. Where the ingredient "glyceride" is listed, this is any suitable glyceride fat or oil having a particle size up to 5 microns, the weight being on a dry fat basis.

Example 1

A mouth wash deodorant having the following composition was prepared:

Boric acid	gms.	2.5
Benzoic acid	gms.	0.1
Glycerine	gms.	2.0
S.D. alcohol	cc.	25.0
Copper gluconate	mg.	0.375-2.22
Glyceride	gm.	0.031
Distilled water, q.s.		100.0 cc.

On the basis of 20.0 cc. of mouth wash for an average "dose," the dose range for the copper gluconate is 0.075-0.45 mg.

Example 2

The following toothpaste deodorant was prepared:

Dicalcium phosphate	40.0 gms.
Glycerine	20.0 gms.
Carboxymethyl cellulose	0.85 gms. (med. visc.).
Sodium lauryl sulfate	0.80 gms.
Heavy mineral oil	1.00 gms.
Soluble saccharin	0.07 gms.
Copper gluconate	7.5-45.0 mg.
Glyceride	0.62 gms.
Distilled water, q.s.	100 gms.

On the basis of 1.0 gm. of tooth paste for an average

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"dose," the dose range for the copper gluconate is 0.075-0.45 mg.

Example 3

A tooth powder deodorant having the following composition was prepared:

Calcium carbonate (flow rate 27)	gms.	50.0
Calcium carbonate (flow rate 15)	gms.	45.0
Powdered castile soap	gms.	4.9
Soluble saccharin	gms.	0.1
Copper gluconate	mg.	12.5-75.0
Glyceride	gms.	1.0

On the basis of 0.6 gram of tooth powder for an average "dose," the dose range for the copper gluconate is 0.075-0.45 mg.

Example 4

The following liquid dentifrice deodorant was prepared:

Sodium lauryl sulfate	gms.	1.0
Glycerine	gms.	8.0
Soluble saccharin	gms.	0.1
S.D. alcohol	cc.	30.0
Methyl cellulose	gms.	0.6
Copper gluconate	mg.	15.0-90.0
Glyceride	gms.	1.2
Distilled water, q.s.		100.0 cc.

On the basis of 0.5 cc. of dentifrice for an average "dose," the dose range for the copper gluconate is 0.075-0.45 mg.

When the various compositions of Examples 1-2 were employed by human subjects in the usual manner for each type of composition, a substantial effect was obtained.

Copper gluconate has been found to contain about 11 percent of copper. Stone, Drug & Cosmetic Laboratory (August 1950, p. 270). A mouth wash dosage of 20 cc. incorporating 0.45 mg. of copper gluconate will contain less than 0.05 mg. of copper. Thus if the said dosage is from a bottle of fluid mouth wash of six ounces, the entire copper content of the bottle would be less than one half milligram, and a twelve ounce bottle would be short of one milligram. The intake of one mg. of copper is safe, nontoxic, and may be increased in substantial degree without danger. Drummond, in Analyst 50, p. 48 (1925), reported that 10 mg. copper per kg. of food, fed daily to guinea pigs for seventy-two days, had no effect. Kiyooka, in Inst. Domestic Sci., 18, p. 413 (1914) reported that up to 76 mg. daily to man is without effect. It has been established that free copper is absorbed in the intestinal tract from food and is normally supplied in amount above 2 mg. daily (Jones et al., J. Lab. Clin. Med. 1947, 32, 387; U.S. Dispensatory, 25 ed., p. 363). It has been used with ferrous salts, in vitamin-mineral preparations. Sollman, A Manual of Pharmacology, p. 1113, points out that U.S. Food Administration set up 30 mg. copper per kg. of food as the permissible limit of extraneous copper.

Although the present invention has been described with reference to particular embodiments thereof, it extends to other similar embodiments.

Having fully described our invention, what we now claim and desire to secure by Letters Patent is as follows:

1. A deodorant for the oral cavity comprising copper gluconate and a non-reactive fluid carrier therefor, the amount of the copper gluconate by weight being from about 0.075 mg. to 0.45 mg. relative to a dosage unit of said deodorant of about 20.0 cc.

2. A toothpaste deodorant comprising copper gluconate and a non-reactive carrier therefor, the amount of the copper gluconate by weight being from about 0.075 mg. to about 0.45 mg. relative to a dosage unit of said toothpaste of about 1.0 gm.

3. A tooth powder deodorant comprising copper glu-

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conate and a non-reactive carrier therefor, the amount of the copper gluconate by weight being from about 0.075 mg. to about 0.45 mg. relative to a dosage unit of said tooth powder of 0.6 gm.

4. A liquid dentifrice deodorant comprising copper gluconate and a non-reactive carrier therefor, the amount of the copper gluconate by weight being from about 0.075 mg. to about 0.45 mg. relative to a dosage unit of said liquid dentifrice of 0.5 cc.

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