

1

2,977,235

WATER-SOLUBLE TABLET FOR THE CURING OF MEAT

Edward J. Hanus, Palisade, and John W. Carr, Cranford, N.J., assignors to Merck & Co., Inc., Rahway, N.J., a corporation of New Jersey

No Drawing. Filed Mar. 27, 1958, Ser. No. 724,242

3 Claims. (Cl. 99—222)

This invention relates to improved compositions containing isoascorbic acid or an alkali metal salt thereof as an active ingredient and more particularly to tablets containing isoascorbic acid or an alkali metal salt thereof.

Isoascorbic acid and its alkali metal salts, and particularly the sodium salt, are useful in the curing of meat. The material is dissolved in water and applied to the meat in aqueous solution. One difficulty encountered in preparing aqueous solutions of isoascorbic acid and its salts is that frequently the material is not precisely measured. This leads to poor curing.

According to the present invention a completely water-soluble, effervescent tablet containing either isoascorbic acid, an alkali metal salt thereof, or both, is prepared. These tablets provide precisely measured quantities of active ingredient, thereby eliminating all errors in weighing which attend the use of bulk material.

The active ingredient in the tablets of the present invention, as previously indicated, is either isoascorbic acid, an alkali metal isoascorbate, or both. A very economical tablet is one in which the isoascorbic acid-active material consists of about 75% to 80% of sodium isoascorbate and 20% to 25%, by weight, of isoascorbic acid. These amounts are by no means critical, as the active ingredient may be only isoascorbic acid, or sodium isoascorbate alone, or any ratio of the two. One advantage to the use of isoascorbic acid, either alone or in high proportions, as the active ingredient, is that the acid also serves to promote effervescence, as will be hereafter explained. The combined weight of isoascorbic acid and alkali metal isoascorbate is generally 75% or more of the total tablet weight.

Rapid solution of tablets according to the present invention is promoted by the inclusion of an effervescent agent. This agent may be either a single material or a combination of two or more materials which interact with water to produce effervescence. A preferred effervescent agent is sodium bicarbonate and a water-soluble, non-toxic solid acid such as citric acid or tartaric acid. The acid reacts with the sodium bicarbonate to produce effervescence. As explained previously any isoascorbic acid in the tablet also serves as a source of acid to produce effervescence. Effervescence is obtained with only a relatively small proportion of effervescent agent. While sodium bicarbonate has been indicated as the source of carbon dioxide in the effervescent agent, it is apparent that other alkali metal salts of carbonic acid, as for example potassium bicarbonate may be substituted for the sodium bicarbonate.

A small quantity of solid lubricating agent is included in the tablet formula in order to facilitate tablet compression. It is essential that this lubricating agent be water-soluble so that the meat-treating solution formed on dissolving a tablet is not contaminated with suspended particles. A preferred lubricating agent is a polyethylene glycol having a molecular weight of at least about 1500. Higher molecular weight polyethylene glycols having an average molecular weight of about 3000 to 7500 have

2

been quite advantageous. There are no limitations on molecular weight except that it should be sufficiently high so that the lubricating agent is a solid but not so high as to reduce solubility in water.

The tablets are made according to conventional tablet-making procedures. All ingredients are screened to fine mesh (about 40 mesh to 80 mesh, as desired), dried, and then dry-mixed. The dry-mixed materials are compressed into tablets of desired weight. A conventional tablet compressing machine may be used for this purpose. Adherent tablets are formed without the use of any binding agents. A desirable tablet weight for use in making solutions for treating meat has been found to be about 15 g., which when dissolved will yield about 12 g. of active ingredient in solution.

This invention will be further illustrated with respect to the following specific embodiments thereof.

Example 1

A tablet mix containing the following materials in the amounts indicated was prepared:

	G.
Sodium isoascorbate -----	9,920
Isoascorbic acid -----	2,020
Sodium bicarbonate -----	1,060
Citric acid (anhydrous) -----	500
Polyethylene glycol ("Carbowax 4000") -----	1,500
Total -----	15,000

The sodium isoascorbate, sodium bicarbonate, citric acid, and polyethylene glycol were screened through No. 80, No. 40, No. 40, and No. 100 stainless steel screens respectively. All materials were then dried at 60° C. for 16 hours prior to dry-mixing. The materials were dry-mixed and compressed on a tablet machine into 1,000 tablets having a weight of 15 g. each.

Example 2

A tablet mix containing the following ingredients in the amounts indicated was prepared. The ingredients are:

	G.
Sodium isoascorbate monohydrate -----	9.30
Isoascorbic acid -----	2.27
Sodium bicarbonate -----	1.26
Citric acid -----	.67
Polyethylene glycol ("Carbowax 6000") -----	1.50
Total -----	15.00

All ingredients were screened and dried in the same manner as in Example 1, prior to dry-mixing. The ingredients were formed into a single tablet.

The tablets of the present invention dissolve rapidly in water, forming a clear solution which is completely free of any turbidity. The resulting solution contains sodium isoascorbate in a quantity that is useful in the treatment or curing of meat.

While this invention has been described with reference to specific embodiments thereof, it is understood, that these embodiments are by way of illustration and not by way of limitation.

What is claimed is:

1. A completely water-soluble tablet for the curing of meat comprising sodium isoascorbate, isoascorbic acid, sodium bicarbonate, citric acid, and a solid polyethylene glycol lubricating agent, the amount of sodium isoascorbate plus isoascorbic acid constituting at least 75% of the total tablet weight.

2. A completely water-soluble tablet for the curing of meat consisting essentially of sodium isoascorbate and

3

isoascorbic acid in the weight ratio of about 75:25 to about 80:20, sodium bicarbonate, citric acid, and a water-soluble polyethylene glycol having a molecular weight of at least 1500, the combined weight of the sodium isoascorbate and isoascorbic acid constituting at least 75% of the total tablet weight. 5

3. A completely water-soluble tablet for the curing of meat consisting essentially of sodium isoascorbate and isoascorbic acid in the weight ratio of about 75:25 to about 80:20, sodium bicarbonate, citric acid, and a water-soluble polyethylene glycol having a molecular weight of at least 1500, the combined weight of the sodium isoascorbate and isoascorbic acid being approximately 12 g. and constituting at least 75% of the total tablet weight. 10

4

References Cited in the file of this patent

UNITED STATES PATENTS

2,399,085	Winslow	Apr. 23, 1946
2,540,253	Gakenheimer	Feb. 6, 1951
2,637,536	De Ment	May 5, 1953
2,739,899	Hollenbeck	Mar. 27, 1956
2,823,132	Sair	Feb. 11, 1958

OTHER REFERENCES

10 Miller et al.: "The Use of Polyethylene Glycol as a Binder in Tablet Compression," J.A.P.A., Sci. Ed., vol. 43, No. 8, August 1954, pages 486-88.

Remington's Practice of Pharmacy, 11th Edition, Mack Publishing Co., Easton, Pa., 1956, pages 368, 369 and 379.