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UNITED STATES PATENT OFFICE

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PROCESS FOR DEGUMMING SILK

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This invention relates to a process for degumming silk.

In a co-pending application Serial No. 553,279, I have disclosed a process for degumming silk which consists in a treatment of the silk under suitable conditions as to temperature, etc., with a solution of a proteolytic enzyme, such as papain, which is active in an acid, in a slightly alkaline, and in a neutral medium.

It is the especial object of the present invention to provide a process which will be more economical, both in the amount of the enzyme used and in the speed and character of the action, than the process referred to or other processes as heretofore practiced for degumming silk.

I have discovered that by the addition of suitable activators to the enzyme bath or solution under proper conditions the amount of the enzyme necessary to effect the desired degumming of the silk may be materially reduced, and that the degumming action of the enzyme is more complete and may be completed in a shorter time than with other processes heretofore practiced.

Briefly stated, the process of my prior application consists in preliminarily washing the silk in a weak soap solution or a weak alkaline solution, and then immersing the silk in a weak solution or bath of the selected enzyme, as for instance papain, at a temperature of 50° C. or above, the silk after it has been sufficiently degummed being rinsed and dried.

In carrying out the process of the present invention, I add to the enzyme bath an activator by the employment of which the amount of the enzyme used may be decreased and its action accelerated. As a specific example, I may proceed as follows, using a papain solution as illustrative of the process. The papain bath or solution is prepared in the proportion of 1 gram of papain of commercial strength to 5 liters of water. To this bath is added an activator in quantities from ⅓ to ⅕ the quantity of the commercial enzyme by weight. As for instance for the papain bath specified ¼ gram of the activator may be added. Various activators may be employed for this purpose, but I prefer to use potassium cyanide or hydrogen sulphide.

By the use of these activators the time of the desired degumming action of the enzyme is cut down, thus permitting faster working, the amount of the enzyme proportionately to the amount of the silk treated may be lessened, and the degumming action is more complete.

What is claimed is:

1. The process of degumming silk which consists in subjecting the silk to the action of a solution of papain in the presence of an activator at a temperature sufficient to maintain the activity of the enzyme.

2. The process of degumming silk which consists in subjecting the silk to the action of a solution of papain in the presence of potassium cyanide at a temperature sufficient to maintain the activity of the enzyme.

3. The process of degumming silk which consists in subjecting the silk to a bath or solution of papain to which has been added potassium cyanide in quantities from ⅓ to ⅕ by weight of the enzyme, at a temperature sufficient to maintain the activity of the enzyme.

In testimony whereof, I have hereunto set my hand.

LEO WALLERSTEIN.