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PREPARATION OF HIDES OR SKINS FOR TANNING

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The usual process of preparing hides or skins for tanning consists either in first liming the softened hide or skin, then de-hairing it and finally bating it, or in conducting the removal of hair with the aid of enzymes comprising as essential constituent tryptic ferments; in both cases a strong alkaline pre-treatment is necessary. The pre-treatment has great disadvantages; by partial degradation of the protein substances of the hide, there is a more or less considerable loss of weight. This, however, cannot be avoided, since tryptic ferments alone cannot loosen the hair. This last fact is understandable from the new investigations of Waldschmidt-Leitz and his co-workers, as well as of Grassmann and his co-workers (see Collegium 1931, Ref. page 167), for the tryptic ferments are greatly hindered in their action by the degradation products of the keratins concerned in the structure of hair.

According to the present invention, in contrast with the foregoing statements, an alkaline pre-treatment of the hide or skin is avoided by use of the catheptic ferments (see Waldschmidt-Leitz, Zeitschrift für physiologische Chemie 188, page 17 (1929/30)) for the preparatory process, it having been found that these ferments are directly activated by the degradation products of the keratin so that the loosening of the hair and the bating may be conducted in a single operation. Other activators may also be added, such as substances having a reducing action, for example sulphur compounds of an inorganic or organic nature, such as sodium hydrosulphide, thiosulphuric acid, thioglycolic acid etc. It is only necessary to ensure preliminary softening of the skin, if necessary with the use of neutral salts. A further advantage of the invention resides in the fact that the maximum effect of the catheptic ferments lies at a pH-value between 7 and 5, whereby the treatment becomes one which improves the skin and is practically unaccompanied by loss.

The following examples illustrate the invention:—

(1) Thoroughly softened calfskins are treated at 37° C. with an extract of 0.1 per cent. strength of a powdered animal organ containing cathepsin (such as liver, spleen, kidneys, as well as the mucous membrane of the stomach and blood), or with an extract of 0.3 per cent. strength of a broth, (brought to a pH-value=5 by addition of acetic acid), of such an organ absorbed in sawdust, the treatment continuing until the hair is loosened. The development of bacteria is retard-

ed by an addition of 0.5 per cent. of boric acid. The loosening of the hair sets in after about 48 hours. The skins are then worked up as usual. By treating the skins in a neutral solution of salt before tanning, the leather obtained is of enhanced softness.

(2) Thoroughly softened calfskins are treated at 37° C. in an extract of 0.1 per cent. strength of a powdered animal organ containing cathepsin, with addition of 0.2 per cent. of NaSH and 0.5 per cent. of boric acid, the solution being adjusted, by addition of acetic acid, to a pH-value=6-7. In this case the hair is loosened after about 24 hours. When the skins have been cleaned they are further worked up in the usual manner.

(3) In a bating liquor consisting of an extract of 0.1 per cent. strength of a powdered animal organ containing cathepsin, 0.1 per cent. of cystein, 0.5 per cent. of boric acid and enough acetic acid to bring the bath to a pH-value=5, thoroughly softened calfskins are treated at 37° C. until loosening of the hair sets in, which is the case after about 24 hours. The skins are further worked up as usual. Instead of the cystein, there may be used 0.2 per cent. of thioglycolate of sodium.

What I claim is:—

1. A process for preparing with the use of ferments hides or skins for tanning, consisting in treating the softened hide or skin with an aqueous extract of an animal organ containing cathepsin with addition of an activating substance having a reducing effect.

2. A process for preparing with the use of ferments hides or skins for tanning, consisting in treating the softened hide or skin with an aqueous extract of an animal organ containing cathepsin with addition of a sulphur compound having a reducing effect.

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