

ALIEN PROPERTY CUSTODIAN

METHOD OF MAKING CREAM OF TARTAR

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This invention relates to an improved method of making cream of tartar.

As it is known cream of tartar is obtained from the wastes of the making of wine, particularly from the lees or dregs of wine. The commercial crude cream of tartar is a product with a rather varying content of potassium bitartrate the value of which greatly depends on the quantities and nature of the impurities contained therein besides the potassium bitartrate. The making of the cream of tartar is based on its very different solubility in cold or hot water respectively. The potassium bitartrate content of a saturated aqueous tartar solution will amount to 5.85 grms of potassium bitartrate in 100 ccms of solution if the temperature of the latter is of 100° C whereas it will amount to only 0.38 grms to the same volume if the temperature is of 10° C. In making cream of tartar the raw material, such as lees or dregs or other sediments of wine, as a rule in a pressed or dried state, further husks of grapes, residues of the distillation of said raw materials, etc., is boiled with water and the hot liquid containing besides the cream of tartar water-soluble albumines, carbohydrates, coloring matter, etc. is separated from the yeast cells and other suspended matter by filtration. The filtrate is then allowed to cool down to bring about the crystallisation of the cream of tartar. The filtration of the hot liquid gives much trouble, and the filtrate yields a very impure product. The filtration is achieved as a rule in steam-heated filter presses. These presses with the necessary attachments such as pumps, clarifying and decolorating devices, etc. are rather expensive, and their manipulation requires skilled workmen so that a commercial crude cream of tartar of good quality could only be obtained in large scale manufacture.

The process according to the invention enables the particularly economic recovery of a crude cream of tartar of best commercial quality by means of a very simple apparatus so that the working up of the wastes of wine-making is made to pay even if done on a small scale, and in less extended wine-growing countries.

The term "wastes of wine-making" as it is used within the present specification includes in addition to pressed, unpressed or dried sediments or lees or dregs of wine also husks of grapes, pomace and the like as well as the residues of the distillation of these wastes.

It has been found that the expensive filter presses hitherto employed can be dispensed with and the filtration be carried out in an easy, cheap

and most effective manner with the use of a heated sand-filter, the filtration yielding in one single working operation a relatively pure filtrate from which a commercial crude cream of tartar of best quality will crystallise. By suitably selecting the filtering sand, sorting and arranging it in layers according to the size of its grains wherein also adsorbent substances such as infusorial earth, grained charcoal etc. may be employed it is possible to free the filtrate from at least part of some undesirable components, among others in particular from coloring matters. The term "sand filter" is to be understood quite generally as a filter comprising a filling consisting of natural sand such as quartz sand, pumice and the like, or artificial sand such as powdered and sieved glass, slags, rocks etc., or mixtures or alternating layers of the said materials; this filling is preferably supported by an undermost layer of gravel.

The heating of the filter is preferably done by means of steam passed through heating pipes or a coil arranged in the filtering material. The pipes or coils may be made of lead for instance. The heating, i. e. the supply of the steam is so regulated as to keep the temperature of the hot liquid passing through the filter constantly at about 100° C. Instead of steam other heating media such as furnace gases, heated liquids etc. may equally be employed.

The filter, at its simplest, can be constructed by providing in a wooden vat, with an outlet at its bottom, between two perforated partitions, undermost a layer of gravel and above the same two or more layers of sand having different grain sizes.

The somewhat desiccated yeast cells collecting on the surface of the filter can be removed in the form of a coherent layer. This is done at suitable intervals whereby a thin layer of impure sand sticking to the yeast cell layer is removed too, and has to be made up from time to time by fresh sand.

The filtration can also be done in two stages, although still in one working operation, by providing two sand filters above each other, spaced apart to some extent to allow the liquid to collect between the two of them. The first, i. e. the pre-filter, need not comprise more than one sand layer arranged, for instance, in a tiltable frame above the main filter. In this case the yeast cells and part of the other solids will be retained by the pre-filter which from time to time can be removed as a whole to be replaced

by fresh sand. Preferably the pre-filter and the space where the liquid collects are heated too.

Example.—100 kgs of pressed lees of wine having a water content of 60% and a total tartaric acid content of 12,2% (after Goldenberg) were distributed in boiling water, being stirred, the liquid was diluted by the addition of water to a volume of 350 litres, and boiled for one and a half hour. The hot liquid was then passed through a sand filter having a surface of 5 sq. metres, and being equipped with a pre-filter as described above. The filter had previously been heated to 110–120° C. and was kept approximately at this temperature during filtration. After two hours the filtration was completed. The filtrate of a light yellow color was allowed to stand for three days in a cool room. The weight of the crystallised product separated, freed from the mother liquor and dried amounted

to 14.1 kgs, with a tartaric acid content of 68,2%, corresponding to a potassium bitartrate content of 85,5%. The color of the product was a grayish white. The mother lye could be utilized in the next operation to dilute the lees of wine, a measure that may be repeated several times.

The process according to the invention can advantageously be combined with the production of brandy and the like from the wastes of wine-making, the residues of the distillation of said wastes being repeatedly extracted with water, and the solution passed through the sand filter.

The temperature and supply of the heating steam can be so regulated as to cause some of the water of the liquid passed through the filter to evaporate. The rising steam sweeps out the spaces between the sand grains and thus acts to clean the filter.

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