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Carlson

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[54] **SYRUP AND METHOD OF MANUFACTURING SAME**

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[51] **Int. Cl.**..... **C13d 3/12;** C13f 1/00; C13f 3/00

[58] **Field of Search** 127/29, 55; 426/213, 380, 426/162

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[57] **ABSTRACT**

A sucrose-based syrup is increased in viscosity to provide a preferred pourability and non-absorptive characteristic on pancakes and like porous comestibles to which it is applied by a method which employs a semi-refined sugar syrup which is filtered through a diatomaceous earth media and mixed with CMC-thickened softened water operative to compensate for presence of ash and other flocculents in the semi-refined sugar syrup.

3 Claims, No Drawings

SYRUP AND METHOD OF MANUFACTURING SAME

BACKGROUND OF THE INVENTION

Many users prefer a table syrup which is thickened to an extent such that the syrup remains on the pancake or like baked preparation, be it chemically- or yeast-leavened, and is less absorbed thereby to provide an improved organoleptic acceptance from standpoints of both taste and appearance; sodium carboxymethylcellulose (CMC) has been added to table syrup preparations for such purposes. This addition renders more obvious the presence of discrete "floc" in some sugar preparations after extended shelf storage, particularly those which are less refined, thereby reducing syrup clarity. Although the practice of employing CMC to thicken a variety of table syrups and like topping compositions has been employed previously, the ability to provide an economical and reliably produced clear syrup containing CMC remains significantly dependent upon the absence in the syrup of such flocculents as ash, organic substances, and other matter which may contribute to a reduction in clarity.

STATEMENT OF THE INVENTION

Accordingly, it is among the principal objects of the invention to provide a table syrup process which is less dependent upon degree of purification or refinement of a given syrup and is less prone to the manifestations of a floc appearance in thickened syrup preparations which employ CMC.

In accordance with the present invention, a process is provided which meets these objects by employing a diatomaceous earth filter aid to partially clarify a concentrated pasteurized semi-refined sucrose syrup containing naturally occurring colloidal substances and combining this filtered syrup with a softened water containing the CMC in amounts operative to reduce Brix and increase viscosity of the filtered syrup to the intended viscosity preparatory to bottling.

DETAILED DESCRIPTION OF THE INVENTION

In accordance with its more specific aspects, a semi-refined syrup having an ash level exceeding that of granulated sugar of commerce and typically having an ash content of about 0.30 and a polarization (dry basis) of 97.50° is admixed with corn syrup, maple syrup, flavor and color. The prepared syrup is at an elevated Brix of at least 68° and preferably 71°–72°. The syrup is subjected to a pasteurization temperature, say, to a temperature of 180°F and at least 160°F and then is passed through a diatomaceous earth filter medium; this medium will typically be employed in a leaf-type pressure filter known in the art and will be continually developed and restored to maximal efficiency by building a substrate operative to remove impurities in the syrup. In this respect a preferred practice will employ regenerating levels of diatomaceous earth in the syrup solution which as it is introduced to the filter will continue to build filtration substrate and operatively result in partial removal of colloidally suspended mineral and organic residue.

Separately of the syrup solution, a CMC solution is prepared at ambient or only slightly elevated temperatures employing a softened water which will have any chemical preservatives that may be employed in the finished table syrup present and into which CMC will

be dispersed, say, at a level between 1–5% by weight preferably 2.75% by weight to provide a viscolizing diluent solution. It has been found essential in this respect to employ water of such softened condition as minimizes the flocculation tendencies of the semi-refined sugar syrup described hereinabove. The softened water will be characterized by the following criteria:

	Parts per Million Maximum (By Weight)
Calcium and/or magnesium	5

The softened CMC solution, once prepared, will be heated to a pasteurizing temperature of at least 160°F upon admixture with the filtered concentrate sugar syrup solution and will be blended at a proportion operative to reduce Brix below 68° and typically to a preferred range of 65°–67°, a most preferred being about 66.5° and produce viscosity in the range of 600–1100 cps; the blend will thereafter be repasteurized preparatory to bottling and packing, all in accordance with procedures well known to those skilled in the art.

The following is a typical syrup formulation and range for practicing the formulation of a syrup solution in accordance with the invention:

Ingredients	wt.%	Range of Preferred Level
Semi-refined Liqid Sugar Syrup (67.5° Brix)	58	*
Corn Syrup (42 DE, 43° Baume)	30	**
Soft Water (as specified herein)	8.7	
Maple Sugar Syrup (67.50° Brix)	3.0	1–5***
CMC(Sodium carboxymethylcellulose)	0.20	0.15–0.75
Sodium Benzoate	0.05	
Sorbic Acid	0.03	
Caramel Color	0.02	

*The range of liquid sugar syrup as a percent of the finished product can vary depending upon formulary preference.
**The level of corn syrup employed as such may similarly vary depending upon formulary preference.
***The level of maple syrup forms no part of this invention and may be employed as cost and quality of the finished product is required.

In the foregoing formulation the preferred form of CMC will be one having a high degree of substitution of carboxymethyl groups on the cellulose ester polymer chain, the degree of substitution being inversely related to the degree of stringiness. Moreover, when the degree of substitution is less than optimal, the syrup as thickened will be found to have a non-smooth texture imparted thereto whereas at a high order of substitution the syrup will have a smooth mouthfeel and less stringy. Accordingly, in accordance with its most preferred and specific aspects, the syrup will employ a CMC wherein the degree of substitution is 0.9 carboxymethyl groups substituted per anhydroglucose unit; a medium type viscosity (800 to 3100 cps in a 2% solution by weight at 25°C LVF Brookfield 30 rmp No. 3 Spindle) is preferred.

As thus described the invention will be adaptable to a variety of syrup manufacturers using less than refined sugar syrups. Accordingly, the invention is to be interpreted with regard to the accompanying claims for construction thereof.

What is claimed is:

1. Process for preparing a table syrup which employs semi-refined sugar syrup as its principal constituent, said syrup being thickened with CMC, said process comprising preparing a concentrated, pasteurized, semi-refined sucrose syrup having a Brix of at least 68°, said syrup containing naturally occurring colloidal substances, filtering said syrup through a diatomaceous earth filter media to remove colloidally suspended mineral and organic residue contained therein, separately preparing a CMC solution from softened water having less than 5 parts per million calcium or magnesium, admixing the latter solution with the concentrated syrup to dilute the concentrate and produce an ultimate syrup having a CMC level of 0.15–0.25% by weight, and packaging the diluted syrup in a transparent container.

2. The process according to claim 1 wherein the ultimately prepared syrup has a Brix below 68°.

3. A process according to claim 1 wherein the CMC has an average of 0.9 carboxymethyl groups substituted per anhydroglucose unit.

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