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3,227,558
**PROCESS FOR AGGREGATING
 COFFEE COMPOSITION**
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 3 Claims. (Cl. 99—71)

This application is a continuation-in-part of my co-
 pending application Serial No. 349,467, filed March 4,
 1964, now abandoned, which is a continuation-in-part of
 my then co-pending application Serial No. 176,426, filed
 February 28, 1962, now abandoned, and which, in turn,
 was a continuation-in-part of my then co-pending applica-
 tion Serial No. 54,374, filed September 7, 1960, now
 abandoned.

Heretofore, there have been many forms of complete
 coffee preparations consisting of dry admixtures of coffee
 extract, powdered milk and/or sugar, or both. How-
 ever, none of these prior art admixtures has ever been suc-
 cessful commercially. When dispensed into a cup of hot
 water, each had a tendency to disperse by showing an
 undesirable oiling, scumming, floating, curdling or other
 obnoxious surface conditions that indicates definitely a
 lack of homogeneity. Consequently, there was never pro-
 vided an appetizing coffee beverage of uniform taste and
 aroma comparable to a full bodied cup of fresh coffee.

Cocoa-based compositions containing powdered coca
 and sugar, and optionally starch and/or dried milk, are
 also known for making chocolate puddings or cocoa be-
 verages of simplified preparation. However, such com-
 positions lack the characteristic of being substantially in-
 stantly soluble in water or milk, and tend to form a wet
 glob of material which requires physical dislodging and
 stirring to bring into solution. Generally undissolved ma-
 terial appears also on the surface of the water or milk.
 In addition, the chocolate pudding compositions fail to
 form a product of desirable firmness and uniform consist-
 ency, but instead sag and "weep" when cut vertically with
 a knife or spoon.

An object of this invention is to provide a process for
 making an instant coffee composition of instant coffee
 and sugar and/or powdered milk, or an instant cocoa com-
 position comprising cocoa and sugar and/or powdered
 milk and/or starch.

Another object of the present invention is to provide a
 new process for making an integrated dry material of
 comprising instant coffee, powdered milk, sugar and/or
 combinations thereof, whose ingredients will not separate
 upon dispersion into water with the undesirable showings
 of oiling, scumming, floating, curdling or other obnoxious
 surface conditions that would tend to make the final be-
 verage unappetizing to the eye.

A further object of the invention is to provide a new
 process for making an integrated material containing in-
 stant coffee, powdered milk, sugar and/or combinations
 thereof, wherein the composite particles of said material
 are in the form of discrete, fragile clusters which have a
 porous, sponge-like texture having a fraction of the bulk
 density of the original ingredients and in which there is
 no fractionation of the dry material due to varying den-
 sities under normal handling and shipping conditions. In
 these integrated cluster formations resulting from the
 process, which are also known as agglomerates, the coffee
 and milk portions become enveloped in a coating of sugar
 whereby oxidation cannot seriously affect the milk and
 coffee portions, thereby insuring indefinite keeping quali-
 ties and a longer shelf-life under normal atmospheric con-
 ditions.

An additional object of the invention is to provide cocoa
 compositions which dissolve substantially entirely and in-

stantly in water or milk without leaving an undissolved
 residue floating on the surface or lying at the bottom of
 the liquid.

A still further object is to provide a chocolate pudding
 mixture from which an edible chocolate pudding may be
 made with whole milk, which pudding does not sag or
 "weep" when cut.

Briefly summarized, one embodiment of the invention
 is directed to making a dry integrated composition by
 substantially and thoroughly blending mixtures of either
 (A) instant coffee ingredients comprising instant coffee
 and sugar and/or powdered milk or (B) cocoa mixture in-
 gredients comprising cocoa and sugar and/or dry pow-
 dered milk and/or starch, grinding the blended ingredients
 until the particles thereof have been reduced to an average
 particle size of less than approximately 40 microns, sub-
 jecting the ground ingredients to agglomeration by moist-
 ening, agitating and drying to form discrete, fragile, cluster
 agglomerates having a porous sponge-like texture and a
 bulk density less than a bulk density of the ground in-
 gredients. Such agglomerates are characterized by being
 substantially entirely and instantly soluble in hot or cold
 water or milk.

In another embodiment, conventional dry instant coffee
 granules are intimately combined and processed with
 sugar, powdered milk and/or combinations thereof. When
 these ingredients have been substantially and thoroughly
 blended, the particles thereof are then finely ground and
 integrated through the process of agglomeration by moist-
 ening, agitation and drying to provide porous, sponge-like
 agglomerates, having a bulk density that is approximately
 one-half of the bulk density of the ground blended mate-
 rials before agglomeration. Such agglomerates have a
 characteristic of dissolving instantly in water, preferably
 hot water, without any trace of separation of the indi-
 vidual ingredients. Consequently, only a light stirring,
 such as a person would ordinarily use in combining milk
 or cream in a cup of freshly brewed conventional black
 coffee, is required to produce a full bodied cup of eye
 satisfying coffee that has the taste appeal and aroma of
 fresh coffee.

In a further embodiment, the invention is directed to a
 soluble cocoa composition suitable for conversion into an
 edible food by dissolving in a potable aqueous liquid which
 comprises discrete fragile cluster agglomerates of pre-
 viously substantially uniformly blended particles having
 an average size of less than about 40 microns of cocoa and
 sugar and/or powdered milk and/or starch. Such ag-
 glomerates have a fraction of a bulk density of the ground
 ingredients (before agglomeration) and are substantially
 entirely and instantly soluble in milk or water.

In still another embodiment of the invention, there
 is provided an instantly soluble cocoa composition suit-
 able for conversion into an edible food by dissolving in
 a potable aqueous liquid which comprises a mixture of
 cocoa and sugar and/or powdered milk and/or starch
 made by substantially uniformly blending the aforesaid
 ingredients, grinding the blended ingredients to an aver-
 age particle size of less than approximately 40 microns,
 and agglomerating the ground ingredients by moistening,
 agitating and drying such particles to form discrete,
 fragile cluster agglomerates having a fraction of the bulk
 density of the ground particles and characterized by
 being substantially, entirely and instantly soluble in water
 or milk.

In making the novel and unique integrated agglom-
 erates of the present invention, the dry ingredients, i.e.,
 instant coffee granules, or cocoa, and sugar, powdered
 milk, starch and/or appropriate combinations thereof,
 are combined and admixed in suitable proportions, as
 will hereinafter set forth. Thereupon, they are substan-