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NUTRIENT BEVERAGE

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This invention relates to a nutrient material and more particularly to a nutrient food beverage in dilute or concentrated form, and to the method of making the same. The invention relates primarily to the preparation of more nutritious materials from food products already used as human foods, or to the treatment of materials which are not now regarded as human food products so as to render them capable of use as a human food product. The invention comprises the product of this treatment whether in a dilute or a concentrated aqueous form, or in the form of a powder or solid from which the aqueous member has been substantially completely removed.

It is an object of the present invention to prepare a nutrient material either in liquid or solid form which is pleasing in appearance and taste and which is more digestible and assimilable by the human organism than the raw materials from which it is made, which contributes to a balanced diet and may be made available either as a liquid or solid; if it is made available in the solid or powdered form, the food material of the present invention may be readily brought back to the liquid or beverage consistency by simple addition of water or other liquid medium.

A further object is to provide the food material in the form of a syrup to be used as such or diluted, or in the form of a powder, or in the form of a compressed powder, such as in a tablet or wafer form which may be eaten as such.

It is another object to improve the food value to the human organism of materials which are now used as human foods but whose utilization by the human organism is not as complete as might be desired.

A further object is to prepare the food material of the present invention from raw materials which are not when in their natural or normal form generally consumed as human foods but which when treated in accordance with the process of the present invention have valuable qualities for human nutrition.

Another object is to make more readily available to the human organism the minerals in the raw materials which are subjected to treatment; while these minerals are present in the raw materials, they are not assimilable by the human organism to the desired extent and accordingly it is desired to increase the effectiveness with which these minerals, many of which are highly important to health, are utilized by the organism.

Still other objects of the present invention will more fully hereinafter appear as the description

of typical methods by which the invention is carried into practice proceeds.

As raw materials which may be treated by the process of the present invention to yield the food product contemplated herein, there may be mentioned such materials as the cereals including corn, wheat, oats, rice, barley, millet, buckwheat, and the like which are now used as human food materials. Instead of the cereals, other vegetable products may be employed as raw materials for the present invention, such as potatoes, yams, carrots and other root tubers, the leaf vegetables such as spinach, leguminous vegetables such as peas, beans, etc. In addition, the stalks and leaves of such leguminous plants as clover and alfalfa may be employed. Likewise, the present invention may be employed to prepare nutrient materials from such normally waste products as corn-husks or the leaves of plants and trees and the like. In general, therefore, the present invention involves treatment of vegetable products to make them more utilizable by the human organism, and in a more specific sense it relates to the treatment of carbohydrate-containing vegetable products, such as those mentioned above and other related materials.

In accordance with the process of the present invention the raw material, such as cereal or the like, is subjected at an elevated temperature, preferably at substantially or above the boiling point of water, to the action of a dilute aqueous acid solution followed by a pepsin treatment and then by neutralization of the acid. Preferably, the aqueous acid solution employed is one having a hydrogen ion concentration in the neighborhood of .05 normal, although considerable variation may be made from this figure without departing from the spirit of the invention. The raw material is preferably in a relatively finely comminuted state prior to this treatment, and may, if desired, be previously digested with water at substantially the boiling point until swelling of the raw material has substantially completely taken place. This pretreatment of the material impregnates the pores thereof with water and greatly aids in the subsequent acid treatment by aiding in the penetration of the dilute acid into the innermost portions of the material being treated. The pretreatment with water further aids in the reduction of the particle size of the material by causing the material to disperse throughout the water.

The treatment with dilute acid at or above the boiling point of water is continued for the