

1

3,773,930

AMINO ACID COMPOSITION

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No Drawing, Filed Mar. 23, 1971, Ser. No. 127,388
Int. Cl. A61k 15/00, 27/00
U.S. Cl. 424—180

9 Claims

ABSTRACT OF THE DISCLOSURE

A low residue, dietary composition for supplying nitrogen nutritional requirements is provided comprising at least one amino acid and a quantity of non-amino acid derived caloric material sufficient to obviate the diarrhea problem associated with prior amino acid compositions. The obnoxious taste of the amino acids is masked by including flavoring material in quantities substantially lower than that required to render prior amino acid containing diets palatable, thereby obviating diarrhea problems caused by large quantities of flavoring materials and reducing the cost of the product. The small quantities of flavoring material are made effective in rendering the composition of this invention palatable by the inclusion of pectin, the pectin acting to enhance the masking effect of the flavoring material.

BACKGROUND OF THE INVENTION

This invention concerns essentially residue free dietary compositions for supplying nitrogen nutritional requirements, such compositions being useful in providing the nutritional requirements of pre- and post-operative patients and being particularly useful to users whose normal digestive processes are impaired as, for example, patients in catabolic disease states such as duodenal fistula, the short gut syndrome, pancreatitis, ulcerative colitis and the like. The low residue compositions, designed to be readily absorbed and assimilated in the upper duodenum and upper jejunum, result in minimal intestinal digestive activity and reduced frequency of defecation with the quantity of fecal matter reduced to essentially endogenous amounts. More specifically, this invention concerns dietary compositions comprising at least one amino acid which, in addition to the above-mentioned properties, does not create the diarrhea problems heretofore associated with compositions containing amino acids and which is rendered palatable by the inclusion of surprisingly small quantities of flavoring materials.

Compositions comprising amino acids have been administered parenterally, rectally and orally and have met their primary objective of providing low residue nitrogen nutritional requirements while simultaneously resulting in decreased digestive activity. A drawback, heretofore associated with dietary compositions of this type, is the production of diarrhea. As used herein, diarrhea is a derangement of the gastrointestinal system which results in excessive doses of water and electrolyte being present in the feces causing them to be soft and, in the extreme, liquid. The production of such abnormal feces is generally accompanied by a violent peristaltic motion of the colon and "cramps." Because users of these compositions are generally in a weakened physical con-

2

dition, the production of diarrhea greatly reduces the effectiveness of their nutritional regimen.

A further drawback, in the case of oral administration, is that unflavored amino acid compositions exhibit a particularly obnoxious taste and, accordingly, it has heretofore been necessary to add relatively large quantities of flavoring materials such as, for example, the oils of fruits and berries. It is believed that the large quantities of these flavoring oils per se act as an operative factor in producing diarrhea in users and reinforce the diarrhea problems associated with amino acid diets. The necessity of large quantities of flavoring materials is further disadvantageous in that the materials are expensive, thereby significantly increasing the cost of the dietary composition, and that some users tend to develop nausea after subsisting for a length of time on such compositions.

SUMMARY OF THE INVENTION

In accordance with one aspect of the present invention, a readily absorbable, easily assimilated, low residue dietary composition for supplying nitrogen nutritional requirements is provided comprising at least one amino acid and a quantity of non-amino acid caloric material sufficient to obviate the diarrhea tendencies heretofore associated with prior amino acid containing compositions. The non-amino acid caloric material, which preferably comprises carbohydrates and fats as major constituents, is present in sufficient quantities to result in a ratio of total composition caloric value to amino acid derived caloric value of at least about 8.5 and preferably at least about 10.5.

A palatable form of the dietary composition of this invention, suitable for oral administration, is provided with small quantities of pectin and unusually small quantities of flavoring material, preferably the oils of fruits and berries or synthetic flavors simulating the flavor characteristics of fruits and berries. The surprisingly small quantity of flavoring material, relative to that required for prior compositions, is effective in masking the taste of the amino acids apparently because the pectin included therewith acts as a potentiator of the masking effects of the flavoring material and accordingly the problems associated with highly flavored prior compositions, such as the diarrheic effect of the flavoring oils and their high cost, are obviated. The small quantities of pectin used in accordance with this invention are quantities below that at which the mucilaginous taste of the pectin is apparent. Preferably, the pectin is present in the range of about 0.01 to about 0.4 gram of pectin per gram of amino acids and still more preferably in the range of 0.05 to about 0.25 gram of pectin per gram.

The dietary composition of this invention is additionally rendered nutritious with respect to dietary requirements other than nitrogen. For example, a portion of the non-amino acid caloric material described herein may comprise a nutritionally sufficient amount of fat. A mineral portion and/or a vitamin portion may be included to render the composition complete with respect to these dietary requirements.