more reactive and can catalyze production of free radicals, which have been associated with various degenerative diseases or conditions within the digestive tract. In addition, certain mineral species may cause stomach upset, and may also have relatively low bioavailability.

SUMMARY

This document provides complexes containing minerals, mineral-amino acid compounds, and/or complexes containing mineral-amino acid compounds coupled to polysaccharides, as well as compositions containing the complexes, and methods for making and using the complexes and compositions. At least some of the minerals, mineral-amino acid compounds, or mineral-amino acid/polysaccharide complexes in the compositions provided herein are coated to slow or delay release of the mineral component (e.g., until the complexes have entered the small intestine), in order to reduce the likelihood that the complexes will cause stomach upset.

In a first aspect, the present invention provides a composition comprising a first compound that comprises a first mineral coupled to a first amino acid, wherein the first compound is coated with a slow release coating.

In a second aspect, the present invention provides a method for making a coated mineral-amino acid compound, wherein the method comprises:

dry-blending a combination of (a) one or more mineral-amino acid compounds having a particle size smaller than about 80 mesh with (b) a slow release coating material;

granulating the dry-blended combination to generate a granulated material; and

drying the granulated material.

In a third aspect, the present invention provides a method for making a coated mineral-amino acid compound, wherein the method comprises:

dry-blending one or more mineral-amino acid compounds having a particle size smaller than about 80 mesh in a fluid bed;

granulating the dry-blended compounds in the fluid bed; and

adding a slow release coating material to the mineral-amino acid compounds during the dry-blending step, during the granulating step, or during the dry-blending step and the granulating step.

This document also features a composition. The composition can contain, consist essentially of, or consist of a first complex that includes a first compound conjugated to a first polysaccharide, where the first compound includes a first mineral and a first amino acid, and where the first complex is coated with a slow release coating. The first mineral can be selected from the group consisting of zinc, copper, selenium, manganese, chromium, and iron. The first amino acid can be selected from the group consisting of L-alanine, L-arginine, L-asparagine, L-aspartic acid, L-cysteine, L-glutamic acid, L-glutamine, L-glycine, L-histidine, L-isoleucine, L-leucine, L-lysine, L-methionine, L-phenylalanine, L-proline, L-serine, L-threonine, L-tryptophan, L-tyrosine, and L-valine. The first amino acid can be selected from the group consisting of L-glycine and L-aspartic acid. The first polysaccharide can be selected from the group consisting of cellulose, polyhexoses, polypentoses, polydextrose, starch, polygalactan, polymannan, chitin, chitosan, chondroitin, polyfructose, inulin, pectin, and derivatives thereof. The first polysaccharide can be selected from the group consisting of a cellulose derivative, polyfructose, inulin, and polydextrose. The slow release coating can include sodium alginate, stearic acid, carbomer copolymer, shellac, hypromellose,