applying water-in-oil emulsification process is the additional step needed to separate the microparticles and wash-out the oil.

It is also desirable to offer an iron encapsulate which does not imply the declaration of multiple ingredients. No such encapsulates exist today that can offer satisfactory performance in high moisture applications. From the numerous iron encapsulation systems from suppliers that were evaluated so far, Ferrazone (iron-EDTA) appears to be the best solution. However EDTA is not allowed in all countries.

Similar difficulties are encountered when other micronutrients are considered.

Therefore, it is desirable to offer a versatile fortification solution, which is adapted to several micronutrients.

Jaejoon Han et al. (2008) (Journal of Agricultural and Food Chemistry, 56, 2528-2535) relates to alginate and chitosan functionalization for micronutrient encapsulation.

SUMMARY OF THE INVENTION

Therefore, there is a need for a food-grade encapsulate that exhibits some, preferably all, of the following properties: stability under heat treatment, stability in several food matrices, especially high moisture matrices, stability during storage, protection of the food matrix against alterations associated with micronutrients fortification, or mitigation of the undesirable effects of such fortification. Production of such a micronutrient encapsulate should be reliably reproducible at an industrial scale, in a cost effective manner. Moreover, the encapsulate should be versatile, meaning that it can be adapted easily to several micronutrients.

It is an object of embodiments of the invention to fulfil the need for a food-grade encapsulate having the properties mentioned above. This object is solved by means of invention defined in the independent claims. The dependent claims further develop the central idea of the invention.

In a first aspect, the invention relates to a food-grade encapsulate comprising gelled protein aggregates embedded in a continuous polysaccharide phase, wherein said gelled protein aggregates comprise a micronutrient, and wherein the encapsulate exhibit a size of from 1 micron to 5 mm. Preferably, said micronutrient is a dietary mineral, or a mixture of several dietary minerals.

In embodiments of the invention, the proteins are selected from globular proteins, preferably from whey proteins, soy proteins, egg white proteins, pea proteins, lupin proteins, potato proteins, canola proteins, or mixtures thereof. In other embodiments, said proteins are micellar casein, acid caseins, caseinates, or mixtures thereof.