SUMMARY OF THE INVENTION

[0005] In some embodiments, the present disclosure is directed to methods for preparing a nutritional product containing a lipophilic nutrient. The method comprises mixing a lipophilic nutrient, a monoglyceride and diglyceride (MDG) oil, and a phospholipid to form a first mixture. The first mixture is mixed with an aqueous liquid comprising a carrier, and the resulting aqueous mixture is dried to form a fortifying powder. This fortifying powder comprises MDG oil at a concentration of about 6 wt% to about 50 wt% and the phospholipid at a concentration of about 1 wt% to about 12 wt%. The fortifying powder is mixed with a base nutritional composition to form a nutritional product. In some embodiments, the base nutritional composition or resulting nutritional product may be in the form of powders, solutions, emulsions, suspensions, or gels.

[0006] In some embodiments, the present disclosure is directed to methods for preparing a fortifying powder containing a lipophilic nutrient. The method comprises mixing a lipophilic nutrient, MDG oil, and a phospholipid to form a first mixture. The first mixture is mixed with an aqueous liquid comprising a carrier, and the resulting aqueous mixture is dried to form a fortifying powder. This fortifying powder comprises MDG oil at a concentration of about 6 wt% to about 50 wt% and the phospholipid at a concentration of about 1 wt% to about 12 wt%. In some embodiments, the fortifying powder is further mixed with a base nutritional composition to form a nutritional product.

[0007] In some embodiments, the present disclosure is directed to a fortifying powder. The fortifying powder comprises a lipophilic nutrient, an MDG oil, a phospholipid, and a carrier. The fortifying powder contains the MDG oil at a concentration of about 6 wt% to about 50 wt% and the phospholipid at a concentration of about 1 wt% to about 12 wt%. In some embodiments, the fortifying powder is mixed with a base nutritional composition to form a nutritional product.

[0007a] In one aspect, the present invention provides a fortifying powder comprising: a. a lipophilic nutrient, b. a monoglyceride and diglyceride (MDG) oil present at a concentration of 6 wt% to about 50 wt% of the fortifying powder, c. a phospholipid present at a concentration of about 1 wt% to about 12 wt% of the fortifying powder, and d. a carrier.

[0007b] In another aspect, the present invention provides a nutritional product comprising a fortifying powder as described herein.

[0007c] In another aspect, the present invention provides a nutritional product powder comprising a. a base nutritional powder comprising protein, carbohydrate, and fat; and b. a free particle fortifying powder comprising: (1) a lipophilic nutrient, (2) a monoglyceride and diglyceride (MDG) oil present at a concentration of 6 wt% to about 50 wt% of the fortifying powder, (3) a phospholipid present at a concentration of about 1 wt% to about 12 wt% of the fortifying powder, and (4) a carrier.

[0007d] In another aspect, the present invention provides a method of preparing a fortifying powder containing a lipophilic nutrient, the method comprising: a. mixing a lipophilic nutrient, a monoglyceride and diglyceride (MDG) oil, and a phospholipid to form a first mixture, b. mixing an aqueous solution comprising a carrier with the first mixture to form a second mixture; and c. drying the second mixture to form the fortifying powder wherein: the MDG oil is present at a concentration of 6 wt% to about 50 wt% of the fortifying powder; and the phospholipid is present at a concentration of about 1 wt% to about 12 wt% of the fortifying powder.

[0007e] In another aspect, the present invention provides a fortifying powder prepared by the method as described herein.

[0007f] In another aspect, the present invention provides a nutritional product comprising a fortifying powder prepared by the method as described herein.

[0007g] In another aspect, the present invention provides a method for preparing a nutritional product containing a lipophilic nutrient, the method comprising: a. mixing a lipophilic nutrient, a monoglyceride and diglyceride (MDG) oil, and a phospholipid to form a first mixture; b. mixing an aqueous solution comprising a carrier with the first mixture to form a second mixture; c. drying the second mixture to form a fortifying powder; and d. mixing the fortifying powder with a base nutritional composition to form the nutritional product, wherein the base nutritional composition comprises protein and fat; wherein: the MDG oil is present at a concentration of 6 wt% to about 50 wt% of the fortifying powder; and the phospholipid is present at a concentration of about 1 wt% to about 12 wt% of the fortifying powder.

[0007h] In another aspect, the present invention provides a nutritional product prepared by the method as described herein.