Table 1 shows data for the relative levels of peroxide produced due to oxidation of the fish oil after storage for around 10 weeks. Evidently, the oxidation of fish oil in emulsion was much lower for PG-6 and PG-9 than for WX-6, WX-9, and gum arabic.

TABLE 1

Relative level of peroxide produced using PG-OSA, WX-OSA, and GA

| | Emulsifier | | | | |
|---|---|---|---|---|---|
| | PG-6 | PG-9 | WX-6 | WX-9 | Gum Arabic |
| Relative level of peroxide | 0.448 | 0.533 | 0.894 | 0.936 | 0.935 |

The following literature provides information that may be useful in accordance with the present teachings and each document is hereby incorporated by reference in its entirety, except that in the event of any inconsistent disclosure or definition from the present specification, the disclosure or definition herein shall be deemed to prevail: (1) Guzey, D., McClements, D. J. "Impact of electrostatic interactions on formation and stability of emulsions containing oil droplets coated by beta-lactoglobulin-pectin complexes," *Journal of Agricultural and Food Chemistry,* 2007, 55, 475-485; (2) James, M. G., Robertson, D. S., Myers, A. M., "Characterization of the maize gene sugary1, a determinant of starch composition in kernels," *Plant Cell,* 1995, 7, 417-429; (3) Klinkesorn, U., Sophanodora, P., Chinachoti, P., Decker, E. A., McClements, D. J. "Encapsulation of emulsified tuna oil in two-layered interfacial membranes prepared using electrostatic layer-by-layer deposition," *Food Hydrocolloids,* 2005, 19, 1044-1053; (4) McClements, D. J., Decker, E. A., Weiss, J. "Emulsion-based delivery systems for lipophilic bioactive components," *Journal of Food Science,* 2007, 72, R109-R124; (5) Myers, A. M., Morell, M. K., James, M. G., Ball, S. G. "Recent progress toward understanding the amylopectin crystal," *Plant Physiology,* 2000, 122, 989-997; (6) Nakamura, Y. "Towards a better understanding of the metabolic system for amylopectin biosynthesis in plants: Rice endosperm as a model tissue," *Plant and Cell Physiology,* 2002, 43, 718-725; (7) Ogawa, S., Decker, E. A., McClements, D. J. "Influence of environmental conditions on the stability of oil in water emulsions containing droplets stabilized by lecithin-chitosan membranes," *Journal of Agricultural and Food Chemistry,* 2003, 51, 5522-5527; (8) Shantha, N. C., Decker, E. A. "Rapid, sensitive, iron-based spectrophotometric methods for determination of peroxide values of food lipids," *Journal of AOAC International,* 1994, 77, 421-424; (9) Shin, J., Simsek, S., Reuhs, B., Yao, Y. "Glucose release of water-soluble starch-related a-glucans by pancreatin and amyloglucosidase is affected by the abundance of a-1,6 glucosidic linkages," *Journal of Agricultural and Food Chemistry,* 2008, 56, 10879-10886; (10) Thompson, D. B. "On the non-random nature of amylopectin branching," *Carbohydrate Polymer,* 2000, 43, 223-239; (11) Wong, K., Kubo, A., Jane, J., Harada, K., Satoh, H., Nakamura, Y. "Structures and properties of amylopectin and phytoglycogen in the endosperm of sugary-1 mutants of rice," *Journal of Cereal Science,* 2003, 37, 139-149; (12) Wurzburg, O. B. "Modified Starch," in *Food Polysaccharides and Their Applications, Second Edition*, edited by Stephen, A. M., Phillips, G. O., and Williams, P. A., CRC, 2006; and (13) Yao, Y. "Biosynthesis of starch," in *Comprehensive Glycoscience*, edited by Hans Kamerling, Elsevier, 2007.

The foregoing detailed description and accompanying drawings have been provided by way of explanation and illustration, and are not intended to limit the scope of the appended claims. Many variations in the presently teachings will be apparent to one of ordinary skill in the art, and remain within the scope of the appended claims and their equivalents.

The invention claimed is:

**1**. A dendritic emulsifier for forming an oil-in-water emulsion comprising an anhydride-modified, water-soluble phytoglycogen or water-soluble glycogen-type material.

**2**. The emulsifier of claim **1** wherein the anhydride comprises succinic anhydride.

**3**. The emulsifier of claim **1** wherein the anhydride comprises octenyl succinic anhydride.

**4**. The emulsifier of claim **1** wherein the dendritic emulsifier comprises phytoglycogen octenyl succinate.

**5**. The emulsifier of claim **4** wherein a degree of substitution of the phytoglycogen octenyl succinate is between 0.002 and 0.20.

**6**. A method of preparing an oil-in-water emulsion comprising: combining oil, water, and a dendritic emulsifier; and mixing a combination of the oil, water, and dendritic emulsifier; wherein the dendritic emulsifier comprises an anhydride-modified, water-soluble phytoglycogen or water-soluble glycogen-type material.

**7**. The method of claim **6** further comprising homogenizing the combination of the oil, water, and dendritic emulsifier.

**8**. The method of claim **6** wherein the anhydride comprises succinic anhydride.

**9**. The method of claim **6** wherein the anhydride comprises octenyl succinic anhydride.

**10**. The method of claim **6** wherein the dendritic emulsifier comprises phytoglycogen octenyl succinate.

**11**. The method of claim **6** wherein the oil-in-water emulsion exhibits lower relative levels of peroxide after 10 weeks as compared to the relative levels of peroxide after 10 weeks in the same emulsion prepared using a starch octenyl succinate emulsifier instead of the dendritic emulsifier.

**12**. The method of claim **6** wherein the oil-in-water emulsion exhibits lower relative levels of peroxide after 10 weeks as compared to the relative levels of peroxide in the same emulsion prepared using a gum arabic emulsifier instead of the dendritic emulsifier.

**13**. The method of claim **6** wherein the oil-in-water emulsion exhibits decreased droplet coalescence or aggregation relative to the droplet coalescence or aggregation of the same emulsion prepared using a starch octenyl succinate emulsifier instead of the dendritic emulsifier.

**14**. The method of claim **6** wherein the oil-in-water emulsion exhibits decreased droplet coalescence or aggregation relative to the droplet coalescence or aggregation of the same emulsion prepared using a gum arabic emulsifier instead of the dendritic emulsifier.

**15**. The method of claim **6** wherein the oil-in-water emulsion exhibits decreased susceptibility to oxidation relative to the susceptibility to oxidation of the same emulsion prepared using a starch octenyl succinate emulsifier instead of the dendritic emulsifier.

**16**. The method of claim **6** wherein the oil-in-water emulsion exhibits decreased susceptibility to oxidation relative to the susceptibility to oxidation of the same emulsion prepared using a gum arabic emulsifier instead of the dendritic emulsifier.

**17**. A method of preparing a dendritic emulsifier comprising: reacting an anhydride with a water-soluble phytoglycogen or water-soluble glycogen-type material in solution, thereby forming an anhydride-modified phytoglycogen or