INTRODUCTION

Global micronutrient malnutrition affects over 1/3 of the world’s population, mainly in developing countries. Three major issues have been identified by WHO as the following:

- Vitamin A deficiency (VAD)
- Iron deficiency anemia (IDA)
- Iodine deficiency disorder (IDD)

Food fortification has been recognized as more cost-effective intervention than supplementation or diet modification. Despite the relatively small quantities of vitamins and minerals required, there are major technical challenges in their safe and effective delivery. Innovative technologies are required to ensure the stability of added micronutrients through processing, distribution, retail and food preparation, and ultimately to ensure their effective delivery to the body in safe, bioavailable forms.

Microencapsulation technologies promise to fulfill all these technical needs.

RESEARCH APPROACH

The microencapsulation-based approach has been successfully combined with Double Fortified Salt (DFS) and Ultra Rice® technologies for delivering multiple micronutrients to staple foods with nutrient-fortified premixes made by extrusion, which matches the shape, size, and appearance of common rice kernels or table salt grains.

EXPERIMENTAL METHODS

Ultra Rice® for Rice Fortification

Ultra Rice® and DFS technology have been selected as 2009 and 2010 Tech Award Laureates, respectively, due to their “innovative approaches to addressing global micronutrient malnutrition” [1-2].