Enhancing Public Health: Iron and Micronutrients Fortification of Salt - A Promising Strategy for Nutritional Improvement

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ABSTRACT

Iron and other nutritional deficiencies are a primary public health concern, affecting a significant proportion of the global population. Iron fortification of salt is a cost-effective strategy for preventing iron deficiency anemia in populations, especially in developing countries where the consumption of iodized salt is already widespread. This abstract provides an overview of iron and multiple fortification of salt, the effectiveness of the strategy in improving iron status, and the potential challenges and limitations associated with implementation. Overall, iron fortification of salt is a promising approach to addressing iron deficiency and improving public health. Still, it requires careful consideration of various factors, such as iron bioavailability and cost-effectiveness, to ensure its success.

Double fortification of salt is a strategy that involves the simultaneous addition of two or more micronutrients, such as iron and iodine, to salt. The technology for double fortification of salt typically involves preparing a premix containing iron compounds blended with iodized salt during manufacturing. Extrusion technology is a method of choice or the preparation of iron premix for the fortification of salt. Extrusion technology for iron premix preparation offers several advantages over other techniques, including producing a homogenous and stable blend of the iron compound and other ingredients and controlling the particle size and density.

Double Fortified Salt (DFS) technologies, originating from the Food Engineering Research Group at the University of Toronto, Canada, have undergone a transformative evolution spanning two decades. The development of the DFS process involved multiple stages, initially focusing on investigating chemical interactions among iodine, iron, and salt impurities. This research underscored the necessity for a physical barrier to separate iron and iodine, ensuring its integrity from production to consumption while facilitating nutrient release during food preparation or digestion. The innovation extends beyond iron fortification, enabling the incorporation of folic acid, vitamin B12, and zinc to combat a wider range of nutritional deficiencies.

The presentation delves into various facets of this technology's development, encompassing micronutrient selection, challenges encountered during pilot testing, and effectiveness in enhancing iron status. Furthermore, it addresses implementation challenges and emphasizes the importance of considering factors such as bioavailability, sensory properties, and cost to ensure the widespread success of fortifying salt with these essential nutrients in public health initiatives.

Keywords: Iron fortification, micronutrient deficiencies, extrusion technology, double and multiple fortification of salt.

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