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Article in International Journal for Vitamin and Nutrition Research · April 2014
DOI: 10.1024/0300-9831/a000194 · Source: PubMed

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Original Communication

The Potential of Orange-Fleshed Sweet Potato to Prevent Vitamin A Deficiency in Africa

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Received: August 4, 2014; Accepted: January 9, 2015

Abstract: Purpose: Vitamin A deficiency is among major health problems worldwide that leads to blindness, retarded growth and death, particularly in developing countries. In these countries, vitamin A deficiency largely affects pre-school children, pregnant and lactating mothers, and the rural poor. For instance, the predicted prevalence of vitamin A deficiency for 36 sub-Saharan African countries is 19.1 %. Methods: Different strategies, including vitamin A supplementation, food fortification and dietary diversification, have been used to combat this problem. However, these strategies are not sustainable due to their high costs. Results: Orange-fleshed sweet potato (Ipomoea batatas L. Lam) is a low priced crop, which is part of staple foods in most of sub-Saharan Africa that can be a year-round source of vitamin A. Most of the orange-fleshed sweet potato varieties contain 3000 – 16000 μg 100 g-1 of β-carotene and this contributes to 250 to 1300 μg 100 g-1 Retinol Activity Equivalents (RAE). Therefore, by using orange-fleshed sweet potato, it is possible to improve vitamin A status, increase the bio-availability of different micro-nutrients such as Fe, Zn, Ca and Mg, reduce vitamin A deficiency and hence reduce child mortality rates by 23 to 30 %. Conclusion: The article highlights the significance of vitamin A for human nutrition, the effect of vitamin A deficiency, the different prevention methods and the potential of orange-fleshed sweet potato as a food crop to prevent vitamin A deficiency.

Key words: β-carotene, intervention strategies, Ipomoea batatas, orange-fleshed sweet potato, vitamin A deficiency

Introduction

Vitamin A deficiency (VAD) is a major health problem globally. An estimated 140 to 190 million children aged under 5 years are reportedly known to have low serum retinol concentrations (<0.7 μmol l-1). Of these, nearly 100 million live in south Asia and sub-Saharan Africa (SSA) [1–3]. According to a World Health Organization (WHO) report, most countries in SSA are categorized as having a public health problem concerning clinical and sub-clinical VAD [3]. VAD leads to blindness, retarded growth and death in many of the developing countries. It is estimated that some 3 million children in SSA under the age of 5 suffer from partial or total blindness as a result of VAD. It especially affects pre-school children, and pregnant and lactating mothers of the rural poor [3]. For instance,