Use of banana diversity for nutritious diets

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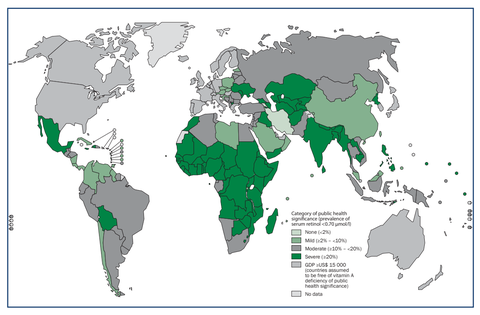
Vitamin A deficiency (VAD)

- VAD is a public health problem in more than half of all countries, especially in Africa and South-East Asia.
- It is the leading cause of preventable blindness in children. An estimated 250,000-500,000 children become blind every year, and half of them die within 12 months.
- VAD may increase the risk of maternal mortality.



Biochemical vitamin A deficiency (retinol) in preschool-age children

(source: http://www.who.int/)

Banana as staple food

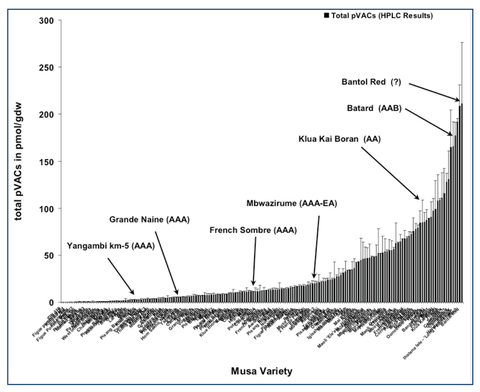
- Banana is 4th most important crop in least developed countries and a staple food for several hundred million poor people.
- It provides an important source of nutrients.
- Over 400 cultivars of banana are grown by smallholders worldwide. These farmers grow in their fields up to 30 cultivars simultaneously.

Bananas on display at a fruit and vegetable market in Nairobi, Kenya.

(source: www.musarama.org)

Bananas high in vitamin A

- Large-scale screening of the banana genepool by Bioversity International and its partners has shown that there is substantial variability in the levels of vitamin A precursors in banana cultivars.
- These results show that the levels in some cultivars are so high that they can contribute to improving the vitamin A nutritional status of banana-dependent populations at modest and realistic fruit consumption levels.



Pro-vitamin A carotenoid levels in a range of banana cultivars.
Davey et al. (2009) reported values ranging from 0 (undetectable) to 211 nmol/gdw (11,337 µg/gdw).

Fast-tracking vitamin A-rich bananas

- A selection of vitamin A-rich banana cultivars was sent from the Bioversity International Musa Germplasm Transit Centre to Burundi and the Democratic Republic of Congo, to evaluate their agronomic performance and consumer acceptance in this region.
- At least 5 of the cultivars performed well agronomically and their overall acceptance was not significantly different from that of local cultivars.
- At least 6 of the cultivars had levels of vitamin A precursors that are high enough to meet a child's needs by consuming 100 grams/day of the ripe fruit.

The orange Fei banana known as Karat in Pohnpei contains 100 times more provitamin A carotenoids than the white Cavendish banana that dominates the export trade

(source: www.musarama.org).

Conclusions

Bioversity International looks into the variability of nutrients in food crops to introduce more nutritious diets that are affordable and culturally acceptable. Our research has shown that the identification and promotion of naturally occurring vitamin A-rich banana cultivars has the potential to have significant long-term beneficial impact on the incidence of VAD in banana-dependent populations.

Selected references

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For more information about vitamin A in banana, check out the Musapedia page on vitamin A: http://www.promusa.org/Vitamin+A+in+banana

RESEARCH PROGRAM ON Roots, Tubers and Bananas

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