

INFORMATION ON RESEARCH RESULTS

1. General information

The project title: *Effect of soils, varieties and cultivation technique on Carotenoids content of Gac fruits*

Code number: B2010-16-156.

Project leader: Vo Thi Guong

Implementing institution: Can Tho University.

Duration: from January- 2010 to August - 2012

2. Objectives

- Selecting the Gac variety which has high fruit yield and fruit quality for medicine production.
- Determining the content of carotenoids in Gac fruits planted on degraded soil and alluvial soil.
- Recommendation on cultivation technique (fertilization) for high fruit yield and fruit quality on degraded soil and alluvial soil.

3. Creativeness and innovativeness

- Selection the good variety which has high fruit yield and high content of lycopene và beta-carotene.
- Evaluation the fruit yield and carotenoids content in Gac fruits grown on degraded soil and alluvial soil.
- Fertilizer recommendation for Gac cultivation on degraded soil and alluvial soil.

4. Results

Results have showed that fruit yield of three Gac varieties were in the range of 7,8–12,5 tonnes.ha⁻¹. OMC variety had highest number of fruit and fruit yield, different from other two varieties. Beta-carotene content was in the range of 133,3–764,3 µg.g⁻¹ fresh meat fruit, OMX variety had highest β-carotene content, while lycopene content of three varieties was about the same, 840–1223 µg.g⁻¹. Although OMC variety had lower β-

carotene than OMX, it had the highest fruit yield and relative high lycopene content. Therefore this variety can be selected for cultivation in a large area for medicine production.

On degraded soil, compost amendment of 5 kg in combination with 80g per plant resulted in highest fruit yield, 14.2 tonnes.ha⁻¹, significantly different from other levels. On alluvial soil, fruit yield obtained 11.7 tonnes.ha⁻¹ by application of 50g N và 5kg compost.

On degraded soil, Carotenoids content in fruits was found higher in compared to Gac fruits planted on alluvial soil.

Applying 5 kg compost and 50-80g N per plant resulted in improvement of soil aggregation stability index, contents of exchangeable Ca²⁺, base saturation percentage in soil ($P < 0,05$) and had the tendency of improving soil available N, P and K exchangeable, but not significantly. In long-term, the effect of compost amendment can be clearly observed.

5. Products

- Articles: There are three papers submitted

- a. Effect of compost amendment on improving soil physico-chemical properties of degraded soil for *Momordica* cultivation in Tri Ton district, An Giang province (Scientific Journal, Can Tho University, accepted).

- b. Fruit yield and fruit quality of three varieties of Gac (*Momordica cochinchinensis* (Lour.) Spreng.) grown on alluvial soil (Scientific Journal, Can Tho University, peer reviewing)

- c. Improvement of soil fertility and fruit yield of *Momordica Cochinchinensis* on degraded soil in Tri Ton, An Giang (Soil Science Journal of Việt Nam, peer reviewing)

- One Master student completed final thesis (Nguyen Van Tam).

- Four undergraduate students completed final thesis.

6. Effects, transfer alternatives of reserach results and applicability

One Gac variety which had high fruit yield and fruit quality was selected for planting on a large production area.

- Fertilizer recommendation (inorganic nitrogen and organic compost) for high fruit yield.

- Based on our results, an area of 5ha of Gac are executing at Tri Ton, An Giang to provide materials for Domesco pharmaceutical Company (A collaboration project with Department of Scientific &Technology, An Giang province and Domesco Company).