

## Finding solutions to precocious flowering of *Stevia rebaudiana* in the Philippines

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### ABSTRACT

*Stevia rebaudiana* is a plant species that was originally discovered in marshlands along the borders of Paraguay and Brazil at an altitude of about 200 meters. It is a source of natural sweeteners called steviol glycosides which are about 300 times sweeter than sugar. These compounds have zero calories and have no glycemic index. It is a good sugar alternative for diabetics, for those with the metabolic syndrome, the obese, the weight watchers and for all health-conscious individuals.

The advantage of growing stevia in the tropics is that it produces leaves all throughout the year. The disadvantage, however, is that stevia tends to flower prematurely in this part of the world. *Stevia* requires at least thirteen hours of day length to prevent it from flowering. Flowering is not an advantage because the size of the leaves and the amount of steviol glycoside content decrease once it begins; plant activities shift to the reproductive stage. The total biomass produced as reflected by the total yield and the steviol glycoside content is adversely affected. This can become a major problem in stevia production in the Philippines. Our country is located close to the equator, and thus, has a day length of just about twelve hours or shorter. The developmental challenge therefore is to find solutions to the problem of precocious flowering of stevia in the Philippines.

Previous studies have shown that exposure of stevia to light at night may prevent induction of flowering. This project aims to test the effect of light treatment on stevia planted in the field. Light treatment stimulates a photochromic response in which light-sensitive pigments within the leaves produce an active photochromic isomer that inhibits the plant to flower.

The research project officially started on the first of November 2014. Cuttings have been propagated from mother plants that came from a single grandmother plant. After a careful selection of uniform cuttings, planting in the field commences on February 2015.

**KEYWORDS:** *Stevia*; Light treatment; photochromic response