Propagation of *Stevia rebaudiana* (Bertoni) by tissue culture : A review

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- Plant tissue culture is a technique used for in vitro regeneration of plants. It depends on maintaining plant cells in aseptic conditions on a suitable nutrient medium.
- The culture consists of a mass of undifferentiated cells for an extended period of time or regenerated into complete plants.

Classification

Kingdom	• Plantae
Division	• Magnoliophyta
Class	• Magnoliopsida
Subclass	• Asteridae
Order	• Asterales
Family	• Asteraceae / Compositae
Genus	• *Stevia*
Species	• *rebaudiana*
Common name	• Sweet leaf, Sugar leaf, Honey leaf etc

Botanical description of *Stevia rebaudiana*

- Stevia rebaudiana Bertoni is a plant belongs to the Asteraceae family.
- It is a shrub growing to 80 cm height, having leaves with a lanceolate shape. (Lemus-Mondaca, 2012).

Importance of Stevia tissue culture

- Stevia is used to produce non-caloric sweetener which are natural alternatives to the synthetic sweetening agents. They do not metabolize in the human body (Rokosa and kulpa,2020), making Stevia safe for those who need to control their blood sugar level.

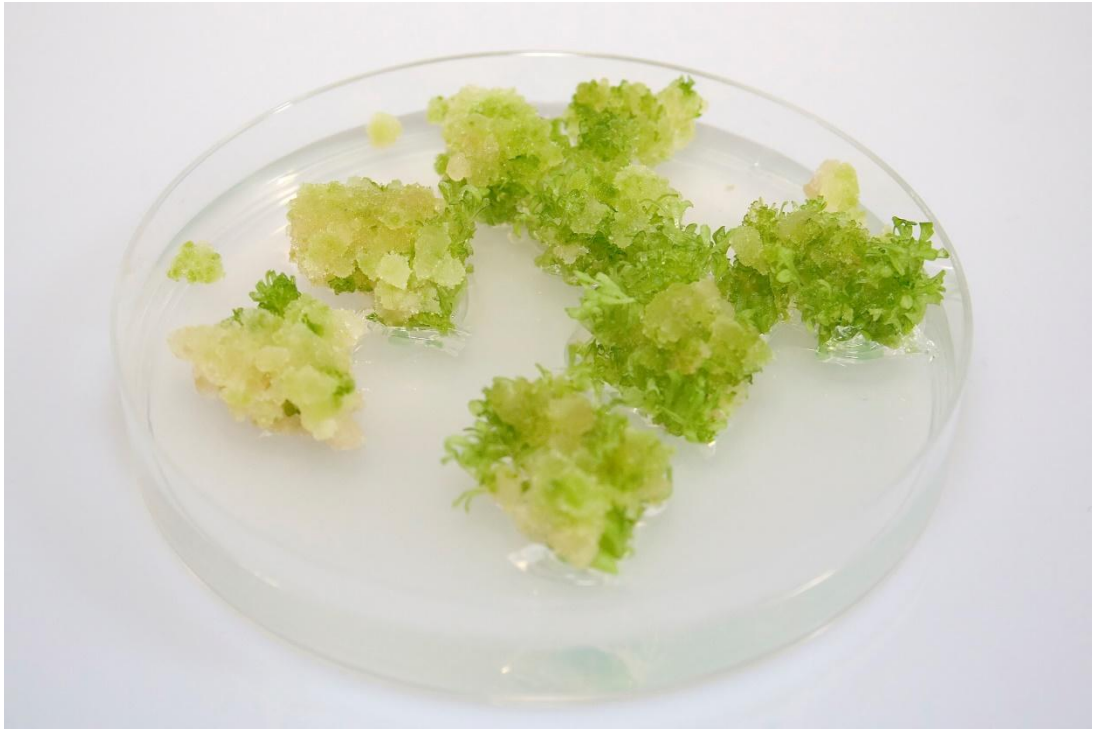
In vitro multiple shoot induction from nodal explants of S. rebaudiana

S. rebaudiana is a self-incompatible plant that generates a few seeds with weak germination.

The present study was aimed to introduce an economic protocol for micropropagation of *S. rebaudiana*. By eliminating the rooting culture medium in this study.

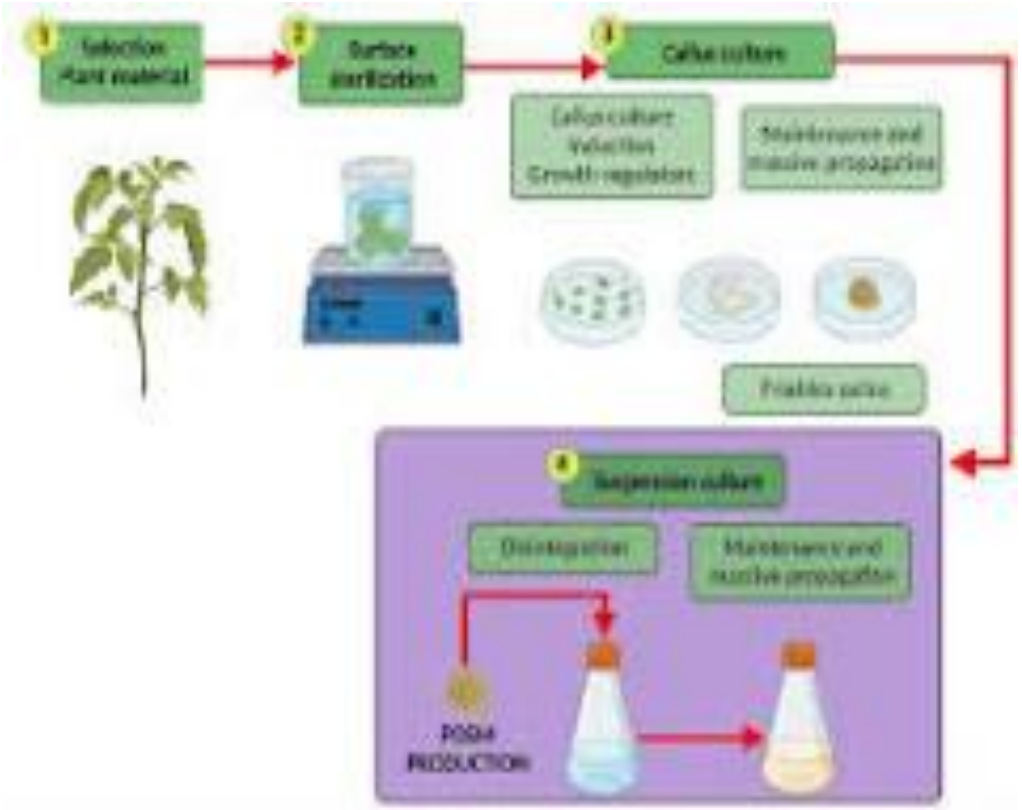
Callus culture

- is the culture of dedifferentiated plant cells induced on media usually containing relatively high auxin concentrations or a combination of auxin and cytokinin under in vitro conditions. Bespalhok-Filho,et al. 1997).



Cell suspension culture

is simply multiplying single cells at a higher rate in a liquid medium. The liquid medium is continuously agitated on an orbital shaker.



Somatic embryogenesis

is a developmental process where a plant somatic cell can dedifferentiate to a totipotent embryonic stem cell that has the ability to give rise to an embryo under appropriate conditions. Macedo et al. (1993)

Figure 4. Somatic embryos of S. rebaudiana SRQ-93, in the regeneration process in R1 media.

CONCLUSION AND RECOMMENDATIONS

- In vitro propagation can become an important alternative to conventional propagation and breeding procedures for *S. rebaudiana* which is both an industrially and medicinally important herb. The above reviewed studies show potential for use of tissue culture methods to get a rapid mass propagation of *S. rebaudiana*.

References

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