

Effect of Gelling Agent and Plant Growth Regulators on in Vitro Shooting and Rooting of *Stevia rebaudiana* Bertoni

Ghizlane Bouaaza^{1,2}, Rachid Benkirane¹, Hamid Benyahia^{2,*}

¹Regional Center of Agronomic Research, Kénitra, Morocco

²Plant, Animal, and Agro-industry Production Laboratory, Faculty of Sciences, Ibn Tofail University, Kénitra, Morocco

Email address:

ghizlane.bouaaza@uit.ac.ma (Ghizlane Bouaaza), rachid.benkirane@uit.ac.ma (Rachid Benkirane),
hamid.benyahia@inra.ma (Hamid Benyahia)

*Corresponding Author

Abstract

Stevia rebaudiana Bertoni is a medicinal plant of economic importance that produces diterpenes glycosides with no calories in its leaves. This herb is a vital crop for the world because it is a new natural sugar replacement. This plant's in vitro growth and development were significantly impacted by its genotype, exogenous plant growth regulators, and gelling agent type. The purpose of this study was to assess how both plant growth regulators (PGRs) and two distinct gelling agents (Agar and Gelrite) affected the growth and multiplication of stevia plants. For shoot proliferation, nodal explants were positioned in Murashig and Skoog (MS) media supplemented with 6-Benzylaminopurine (BAP), Kinetin (Kin), and Indole-3-acetic acid (IAA). The medium was then gelled with either Gelrite or Agar. In vitro shoot segments were cultivated on MS medium without PGRs and gelled with either 3 g/l of gelrite or 7 g/l of agar for rooting after four weeks. On MS medium gelled with agar, direct shoot forms worked quite well. Plants cultivated on MS medium supplemented with 0.5 mg/l of BAP and 0.5 mg/l of IAA produced the greatest number of shoots. A long shoot with the greatest number of internodes was formed using MS medium devoid of PGRs (control). The best media for stevia rooting was agar-gelled.

Keywords

Gelling Agent, Multiplication, Nodal Explant, Rooting, Shoots, *Stevia rebaudiana*