

## Suitable Protocol for Establishing Nodal Explant Culture of a Seedless Indian Blackberry *Syzygium cumini*

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### Abstract

*Syzygium cumini*, generally referred to as Jamun or Indian black plum, is a tropical evergreen tree species and it holds considerable ecological and economic value; however, its low germination rate and seedlessness limit its potential for large-scale cultivation and distribution. A potential solution for the rapid and substantial production of disease-free plants is micropropagation. This study aimed to develop, optimize, and assess two refined protocols for establishing nodal explant cultures of the rare, seedless Indian blackberry. Nodal explants were chosen, and two different protocols, varied mainly in terms of sterilizing techniques, explant preparation, and medium composition were tested. Protocol A, using 50 explants, involved inoculation into Murashige and Skoog (MS) medium supplemented with 1.0 mg/L benzylaminopurine (BAP), following sterilization with ethanol, sodium hypochlorite, carbendazim and streptomycin sulfate. Conversely, Protocol B utilized a more rigorous sterilizing technique that included ethanol, sodium hypochlorite, carbendazim and streptomycin sulphate. The explants were first incubated into liquid MS medium with the same composition as the final solid MS medium for 48 hours. Twenty incubated explants were transferred to MS medium supplemented with 2.0 mg/L BAP, 100 mg/L ascorbic acid, 100 mg/L carbendazim, 50 mg/L citric acid, and 25 mg/L kanamycin sulfate. Protocol A resulted in a 6% success rate for the establishment of aseptic cultures. Numerical data were observed and analyzed. Protocol B, however, demonstrated significantly higher efficacy, achieving to 45% success rate. The results of this study indicate that protocol B is an effective technique for the establishment of nodal explant culture of *S.cumini*.

**Key words** – Micropropagation, nodal explant, seedless Indian blackberry, modified media, *Syzygium cumini*.

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