Abstract

Melastoma malabathricum, belongs to the Melastomaceae family, is an important medicinal plant widely distributed from Madagascar to Australia, that is used in traditional remedies for the treatment of various ailments. Besides its medicinal properties, it has been identified as a potential source of anthocyanin production. The present study was carried out to investigate the effect of sucrose and methyl jasmonate and feeding time on cell biomass yield and anthocyanin production in cell suspension culture of M. malabathricum. Addition of different concentrations of sucrose into the cell culture of M. malabathricum influenced cell biomass and pigment accumulation. The addition of methyl jasmonate was found to have no effect on cell biomass but the presence of higher amount (12.5-50mg/L) had caused a reduction in anthocyanin production and accumulation. MS medium supplemented with 30g/L sucrose and 3.5 mg/L of MeJA added on cero day and 3rd day produced high fresh cell mass at the end of nine days of culture but did not support the production of anthocyanins. However, cells cultured in the medium supplemented with 45g/L sucrose without MeJA showed the highest pigment content (0.69±0.22CV/g-FCM). The cells cultured in MS medium supplemented with 30 g/L sucrose with 3.5mg/L MeJA added on the 3rd and 6th day of culture, showed the lowest pigment content (0.37-0.40CV/g-FCM). This study indicated that MeJA was not necessary but sucrose was needed for the enhancement of cell growth and anthocyanin production in M. malabathricum cell cultures.

Keywords

Melastoma malabathricum, cell suspension culture, sucrose, methyl jasmonate, anthocyanins.