

(ID 288)

Chopped Pine (*Pinus caribaea*) Needles as a Component of Growth Substrate of *Gerbera hybrida* Soilless Culture

Karunananda, D.P.*, Ranathunga, R.K.

Horticultural crops Research and Development Institute, Gannoruwa, Sri Lanka

**dayani.karunananda@gmail.com*

Abstract

This study aimed to assess the feasibility of using freely available pine (*Pinus caribaea*) needles in up country of Sri Lanka as a growth substrate for gerbera (*Gerbera hybrida*) cut flower production. Traditional gerbera cultivation commonly uses soilless media in pot or bed culture, typically using coco-peat as the primary growth substrate. However, the limited availability of coconut plantations in Gerbera-growing regions has led to increased cultivation costs due to long-distance transportation. To address this issue various combinations of chopped pine needles, coco-peat, and partially burned paddy husk were evaluated as growth substrates in different ratios: 1:1:½ (T1), 0:1:½ (T2), 1:0:½ (T3), 1:1:0 (T4), 0:1:0 (T5), and 1:0:0 (T6) for their suitability with gerbera cut flower varieties, Ruby Red (red), Dalma (white), Sunglow (yellow), and Pink Elegance (pink). The experiment was designed as a Completely Randomized Design (CRD) with a two-factor factorial and two replicates. Analysed results did not indicate a significant interaction between variety and growth media for any measured parameter. The tested media influenced leaf length and number, while both variety and media treatments independently impacting flower diameter, flower stalk length, and survival ($p=0.5$). All the varieties exhibited significantly higher leaf numbers and leaf lengths in T1 and T4 (average leaf numbers in T1 were 8.85 ± 0.5 , and in T4, 9.2 ± 0.32 , while leaf lengths in T1 were 26.0 ± 1.3 cm and in T4, 24.92 ± 0.6 cm). Higher survival rates were observed in Pink Elegance when grown in T2, T5, and T4, with rates of $90\pm3.33\%$, $88.66\pm4\%$, and $92.33\pm3.66\%$, respectively. Ruby Red and Dalma displayed higher average stalk lengths (47.1 ± 2.1 and 46.8 ± 0.4 respectively) in all treatments compared to other varieties. However, significantly higher average stalk lengths and flower diameters were observed in T1 (48.3 ± 0.51 cm and 10.1 ± 0.33 cm respectively) and in T4 (46.9 ± 2.1 cm and 9.8 ± 1 cm respectively). These findings suggest that the partial substitution of coconut coir peat with chopped pine needles offers a viable alternative to reduce the cost of soilless growth substrates for gerbera cultivation.

Keywords: Coconut coir peat, Growth substrate, Pot culture, Partially burnt paddy husk