

FLORAL BIOLOGY OF RECOMMENDED COFFEE VARIETIES IN SRI LANKA

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Floral morphology is crucial in understanding the reproductive mechanisms and facilitating crop improvement. This study compared floral traits among four recommended coffee varieties in Sri Lanka: one *Coffea arabica* L. (Arabica coffee) variety (Catimor) and three *Coffea canephora* Pierre ex A. Froehner (Robusta coffee) varieties (GCR, S274, and IMY). Floral dimensions measured were the width of the petal (mm) and length (mm) of the petal, corolla tube, inflorescence stalk, stigma, style, and anther. Parametric data were analyzed using two-way ANOVA with Tukey's HSD test, by verifying normality with the Shapiro-Wilk test. A significant difference ($p < 0.05$) was found between species and varieties for all floral dimensions except stigma length. GCR had the longest petals (18.50 ± 1.45), followed by IMY (17.04 ± 1.99), S274 (16.12 ± 2.20), and Catimor (12.29 ± 1.26), which had the shortest petals. Petal width varies significantly among varieties, with GCR (4.79 ± 0.55) displaying wider petals. Among tested varieties, Catimor (7.07 ± 1.94) had the shorter corolla tubes, while IMY (11.00 ± 1.53) exhibited the longest. Further, IMY (2.27 ± 1.27) had the longest anthers. Both GCR (18.38 ± 1.77) and IMY (19.16 ± 2.44) exhibited the longest styles, while S274 (15.58 ± 2.23) recorded the shortest style. Both pollen germinability and viability were significantly affected by species and variety ($p < 0.05$). Catimor recorded the highest germinability (70.68%) and the highest pollen viability (62.61%). No significant differences in flower count ($p > 0.05$) were observed among varieties, though branch position significantly affected flower count ($p < 0.05$), with S274 having the highest count (18.57 ± 10.9). Fascicle count varied significantly between varieties ($p < 0.05$), with no effect of orientation ($p > 0.05$). S274 and GCR had the highest fascicle counts. These findings on variations in floral traits, pollen germinability, and viability among recommended coffee varieties in Sri Lanka, emphasize their importance for coffee breeding and improvement.

Keywords: Arabica coffee, Floral dimensions, Pollen germinability, Pollen viability, Robusta coffee