B-12 Water consumption pattern of selected local lines and two introduced cultivars of black pepper (*Piper nigrum*)

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Black pepper is an important exportable spice crop covering about 11,000ha. Certain superior characteristics in local selections compared to the introduced cultivars have been observed. High plant casualties and slow growth during the establishment phase are major problems associated with the expansion of local selections. An initial study was carried out to investigate the crop water consumption pattern of local black pepper selections.

Six high yielding clonal selections of pepper (*Piper nigrum*) MNI, MW21, GK49, IW5, KW27, MB12 and 2 introduced cultivars, Panniyur-1 and Kuching were studied in a micro lysimeter experiment with complete randomized design. The experiment was conducted in the nursery site of the Dept. of Export Agriculture, Matale (altitude 357m), May to August 1995.

The leaf area development was highly significant for variety Panniyur-1. There were comparably high leaf growth in MN1, KW27, IW5, and GK49 among other local lines. The maximum daily evapotranspiration was observed in GK49. Lower evapotranspiration values per unit leaf area were observed from selection IW5 and Panniyur-1. Estimated transpiration values indicated that the water loss of GK49 and KW27 were among the highest category and Panniyur-1 and IW5 remained the lowest level on most of the days. Panniyur-1 showed the minimum transpiration per unit leaf area (0.05mm/cm^2/day) and the highest growth per unit of water.

Growth performances of field planted rooted cuttings also showed an almost similar trend and the highest growth was reported in Panniyur-1, and KW27 and GK49 were comparably high among other local lines.

On the basis of overall observations, Panniyur-1, IW5 and the hybrids of Panniyur-1 with KW27, IW5 and GK49 are suggested for further studies to solve constraints in the early establishment phase of pepper.