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Evaluation of cardamom germplasm for yield potential in the high elevations of Sri Lanka

In Sri Lanka cardamom (Elataria cardamomum) is cultivated in the central hills over 600 m altitude, under forest canopy. Due to the restrictions imposed on the cultivation of cardamom above 1100 m, land available for expansion of cultivation is limited. Therefore, exploitation of genetic materials is important to find superior varieties to increase the production. Thus, the objective of this study is to evaluate available germplasm to select high yielding cardamom varieties. In this study, 11 locally collected good accessions were evaluated with four Indian introductions (EC700, EC101, EC102 and EC103). Out of 15 selections tested, local selection EC201 gave the best yield of 2071 capsules / bush /year, which was significantly superior to the yields of EC301 (1182), EC700 (1061), EC401 (1050) and EC300 (1015), which are the next best yielders. Selections EC406 (958), EC101 (860), EC102 (856) EC403 (853) and EC302 (829) had yielded fairly and falls into the next group. Selections EC104 (757), EC400 (756), EC103 (697) and EC405 (686) are low yielders while EC200 provides the lowest yield of 616 capsules/bush/year. Capsule weight (wet & dry) of each selection was determined and the yield in terms of counts were converted into total capsule weight/bush/year to give more meaningful estimate of the final yield. Selection EC201 gave the highest wet & dry capsule weights of 1.049 g and 0.23 g respectively, while EC 103 gave the lowest (0.64 g and 0.12 g). Thus, the previously assigned ranks based on the capsule counts were changed in the conversion of counts to weight. Nevertheless, EC201 gave the highest wet yield of 2172.48 g/bush/year and dry yield of 483.05 g/bush/year is significantly higher than the yields of all the other varieties. Selections EC406 (207.88) and EC300 (203.52) are the next highest yielders while, selection EC301 (182.35), EC700 (166.65), EC401 (166.3), EC101 (162.57) and EC403 (153.53) are moderate yielders. All the other cultivars were yielded below 150g/bush/year of dry cardamom. EC103 and EC200 gave the lowest yields of 87.88 g and 98.00 g. Therefore, on the basis of both the capsule count and the total capsule weight, EC201 is superior to all the

other cultivars tested. Further, an estimated yield of 720 kg/ha/year of processed cardamom could be obtained as a harvest by cultivating selection EC201 at a plant density of 1500 plants/ha.