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Screening local black pepper (*Piper nigrum* L.) accessions for the yield in mid country of Sri Lanka

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Black pepper is the largest commodity in the world spice trade while earning RsMn 3500 to Sri Lanka. Although, total black pepper extent is 30,059 ha; the national average yield in Sri Lanka is 500 kg/ha which is very low when compared to the other pepper growing countries. Therefore, increasing the productivity of black pepper will be possible by introducing suitable high yielding cultivars. Over 400 accessions were collected as germplasm from different parts of Sri Lanka and 43 lines were selected for evaluating the yield components to select the best accession/s at the Export Agriculture Research Station, Matale. Selected 43 lines with two introductions, Panniyur 1 and Kuching were tested using complete randomized design with three replicates and four plants per plot. The trial was maintained using recommended management practices of the Department. Weight of sundried berries were recorded as yield data for seven years. Yield related traits such as spike length, filling percentage, number of berries and berry diameter, fresh and dry weight ratio were also recorded. The highest average processed black pepper yield (2672 $kgha^{-1}yr^{-1}$) was observed in the accession BD/MN41 whereas MT/DM7 yielded 2502 $kgha^{-1}yr^{-1}$. Accessions, WGB1, BD/WA3, KWW10 and Panniyur1 yielded over 2311 $kgha^{-1}yr^{-1}$. The longest spikes (17.95 cm) were observed in BD/GM28 whereas BD/MN41, BD/MW23, BD/MW26 and Pnniyur1 had over 16 cm long spikes; Kuching and KWB had short spikes ranging between 8.5 and 9.5 cm. The best spike filling was observed in BD/ST1 (89.7 %) while WGB1, KWW12, MT/RT2, BD/KG38 and RP/NA1 having over 80 % spike filling. Accession BD/MW23 and Panniyur1 had nearly 12 g/spike while BD/KG38, BD/ST1, MT/RT2 and BD/WA2 had over 10 g/spike. The highest number of berries per spike (88) was shown in BD/KG38 whereas BD/MW23, MT/RT2 and BD/ST1 were shown over 80 number of berries/spike. Large berries (> 6 mm in diameter) were observed in the accessions BD/TP1, BD/ST1 and Panniyur1 while BD/MW23 and MT/RT2 also having large berries when compared to the other accessions. The highest fresh berry weight per spike (10.9 g) was observed in Panniyur1 whereas BD/MW23, BD/ST1, BD/KG38 and MT/RT2 recorded a weight of over 9 g/spike. Therefore, when considering the yield, local accessions BD/MN 41 and MT/DM7 could be recommended as the best accessions while BD/WA3, KWW10, BD/GM28, BD/MW23, BD/MW26, WGB1, BD/ST1, KWW12, MT/RT2, BD/KG38, RP/NA1, MT/RT2 and BD/TP1 can be selected for future hybridization programmes to incorporate better yield characteristics.

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