STABILITY ANALYSIS IN POTATO (SOLANUM TUBEROSUM L.)

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Potato is one of the most productive crops, which can be cooked in many ways and processed into a number of food products. Recently, a large number of companies have stepped into the field of potato processing which demand varieties of potato with more tuber dry matter (>20%) and low reducing sugars (< 0.25%) and phenols. The present investigation was aimed at identifying the suitable varieties of potato for processing in the plains of Punjab. In this study, 12 cultivars of potato including cvs. Kufri Chipsona –1 and Kufri Chipsona-2 were evaluated for their yield potential and processing attributes. viz., dry matter content (%), reducing sugars (mg/100g dry weight basis) and total phenols (mg/100g dry weight basis). These cultivars were planted at three dates viz., 25th Sept. 2003, 25th Oct. 2003 and 25th Nov. 2003 and harvested after 90 days of planting. The results of stability analysis inferred that cv. Kufri Badshah was not stable but surpassed all other cultivars in total and processable yield. However, it had low dry matter content (15.62%) and high reducing sugars (168.90mg) which are not desirable for processing. Nevertheless, it could be suitably exploited for table consumption. In contrast, cvs. Kufri Chipsona-1 and Kufri Chipsona-2 were found to possess about 20% dry matter content, low reducing sugars (54.15mg) and phenols (<43.50mg), but gave significantly lower total and processable tuber (>20g) yield than cvs. Kufri Badshah, Kufri Sutlej and Kufri Anand. The study also revealed that cvs. Kufri Ashoka, Kufri Bahar and Kufri Sutlej were found to be stable for total as well as processable tuber (>20g) yield as judged from their values of mean, regression coefficient and non-significant deviation from regression.

EVALUATION OF NEW POTATO HYBRIDS FOR LATE BLIGHT INCIDENCE AND YIELD UNDER HILL CONDITIONS


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Late blight (Phytophthora infestans) persists throughout the year in the country and perpetuates in one part or the other causing severe yield losses in the susceptible cultivars. Resistance for late blight in the hybrids bred for plains is important to ameliorate the adverse effect of the disease. Thirty-six early to medium maturing hybrids, inducted in the AICRP-Potato for multilocation testing, were planted in a replicated trial at CPRI Shimla during summer 2004 with plot size of 1.2 m² and spacing of 60 x 20 cm. No fungicides were sprayed on the hybrids/controls. Data were recorded on the per cent disease incidence, yield and tuber dry matter (%). Based on the per cent incidence of late blight disease, hybrids were grouped as highly resistant (< 5%), resistant (6-20%), moderately resistant (21-40%) and susceptible (>40%). The results revealed significant differences among the hybrids for disease incidence (%), yield and per cent tuber dry matter. The incidence of late blight ranged from 5% in four hybrids (J/94-90, J/95-242, MP/97-644 and MP/97-921) to 100% in cv. Kufri Jyoti (control). Twenty hybrids, viz., HT/93-707, J/92-13, J/92-164, J/93-58, J/93-81, J/93-86, J/93-87, J/93-9, J/93-129, J/95-221, J/95-229, JW-160, JX-576, MP/97-583, MP/97-625, MS/92-1090, MS/94-1118, MS/95-117, MS/95-1309, MS/97-621, MS/97-1606 and the second control SM/87-185 (hybrid recommended for hills) were found resistant. Ten hybrids namely HT/92-621, J/ 92-167, J/93-4, J/93-77, MS/92-2105, MS/94-899, MS/94-1344, 83-P-47, 94-P-31 and 94-P-59 were moderately resistant, while B-420 (2) and J/95-227 were susceptible. Yield of different hybrids varied between 0.167 to 3.908 kg/m². Although the hybrids in the present study have been selected for short winter days in the plains yet some of them out yielded cv. Kufri Jyoti under long summer days at Shimla. Seven hybrids (94-P-31, J/92-13, J/93-77, J/93-86, MP/97-644, MP/97-921 and MS/94-899) yielded statistically at par with control cv. Kufri Jyoti and most of them were resistant to late blight. Tuber dry matter of the hybrids was estimated on dry weight basis and varied between 13.50% (J/92-167) to 25.46% (HT/93-707). Present studies indicated that hybrids MP/97-921 and MP/97-644 with high yield, higher tuber dry matter (> 20%) and late blight resistance may be suitable for cultivations in the hills to augment the supply of fresh potatoes during lean period (August to December) for the processing industries.