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Exploiting potential of wild *Cicer* species for improving chickpea

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Chickpea (*Cicer arietinum* L.) is one of the most important pulse crops of India covering 9.19 m ha area producing 8.80 m t of the grain. To broaden the genetic base of existing chickpea varieties, pre-breeding efforts involving interspecific and intervarietal crosses has been carried out for the development of high yielding varieties and efficient plant types. In present research, two *Cicer* species (*C. reticulatum* acc. ILWC 21, *C. echinospermum* acc. ILWC 179 and ILWC 245) were crossed to develop 5 Interspecific crosses (Shubhra x ILWC 21, GNG 469 x ILWC 21, IPC 2008-57 x ILWC 21, IPC 2006-88 x ILWC 179, IPCK 2002-29 x ILWC 245) with a view to broaden the genetic base cultivars. All F₁s plants were normal and fertile. The hybridity of F₁s was confirmed using SSR markers for crosses involving *C. echinospermum*. Large amount of significant variability for yield attributes viz., primary branches, secondary branches and pods per plant was observed in all 5 F₂ populations. However, in F₂ crosses involving *C. echinospermum*, 23% single plants showed partial sterility and plants had only 3-5 pods with shriveled seeds. All single plant were grown as progenies in F₃ generation and again 15-18% plants in 23 progenies showed partial sterility. Further, on the basis of phenotype large number of single plant selections were made from fertile progenies. 29 selected plants have 112- 189 pods per plant and 1.66 seeds per pod. The improvement in yield attributes clearly indicates the potential of wild *Cicer* species for chickpea improvement.

Biography

Neelu Mishra has completed her PhD at the age of 26 years from C.S.J.M. University Kanpur. She is working as a Senior research Fellow in project "Developing chickpea cultivars suited to mechanical harvesting and tolerance to herbicides" since 27th January 2014 to till date at Indian Institute of Pulses Research, Kanpur (India). Prior to this She has been also working as a SRF in project Pre-breeding and genetic enhancement in breaking yield barriers in kabuli chickpea" from 20th Nov 2010 to 31st July 2013. She has achieved Young Scientist Award two times. She has published 8 research papers, 2 proceeding papers, 2 book chapters, 2 bulletins, 4 articles in newsletter and also participated in 9 National and 5 International symposium. She is member of 4 professional societies.

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An economic analysis of organic and inorganic sugarcane cultivation in Karnataka

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The present study was conducted to estimate the cost and returns involved under organic and inorganic sugarcane cultivation. The average cost of sugarcane cultivation on organic farm was Rs. 48,426.91 per acre as against Rs. 54,331.32 per acre on inorganic farm. The per acre total return in organic sugarcane farm was highest (Rs.84, 294) than that of inorganic sugarcane farm (Rs. 81, 360). The net return realized from organic sugarcane farm was found to be highest (Rs. 35,867.09) as compared to inorganically cultivated sugarcane farm (Rs. 27, 028.18). Similarly, the return per rupee of investment was more (1.74) in case of organic sugarcane farm when compared to inorganic sugarcane farm (1.50). The results of the study revealed that the per acre yields on organic sugarcane farms (44.6 tonnes) was found to be lower than that of inorganic sugarcane farms (45.20 tonnes). Though organic sugarcane farming gives relatively lower yields in the initial years, its continuous organic practice will help to build up the soil fertility, thereby to get increased yield in the later years. Hence, it is advisable for the sugarcane farmers to switch over to organic farming practices which minimize the cost of production and environmental degradation.

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