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Short Communication

SURVEY AND COLLECTION OF WILD CRUCIFERS FROM CENTRAL HIMALAYAS

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Wild species of plants, through prolonged interaction with pathogens, pests and abiotic stresses, have developed many traits which are important for their survival. On this basis, the wild species of crucifers are likely to be valuable sources of genes important in *Brassica* crop improvement. Studies on wild cruicifers have shown that they posses high degree of resistance to some diseases which menance the oil-yielding crucifers. Some wild crucifers also possess traits such as short life-cycle, fruit shattering resistance, pest resistance, frost resistance, drought resistance and some important chemical characteristics. Although some studies have been initiated in this direction, the wild crucifers have so far remained unutilized for improvement of disease resistance and other traits in oil-yielding crucifers. At the same time, genes from alien plants have already been used for improvement of crops such as wheat, sugarcane, sunflower, beans, potato and some others.

Only a few places in the world have authentic and readily available supply of germplasm of wild crucifers. These sources, however, carry germplasm only of a relatively small number of usually local crucifers. Germplasm of crucifers from most geographic regions of the world, for example India and Canada, is nowhere to be found. One of the authors (J.P. Tewari) has been engaged in the study of wild crucifers from many parts of the world for the past several years. Recently, a study was undertaken on wild crucifers from Spain, which is part of centre of diversity of the progenitors of certain *Brassicas*. This communication reports on collaborative survey and collection of wild crucifers from central Himalayas in Uttar Pradesh which was undertaken from August 20-26, 1992.

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A total of 13 species of crucifers belonging to 10 genera were collected from different locations ranging from 500-3800 msl (Table 1). Voucher specimens of the crucifers are kept at the NBPGR Regional Station, Bhowali. Seeds of those crucifers which were in the fruiting stage were also collected. Most of the seed samples are small and will have to be multiplied before any further study. Once this is done, testing of various species for resistance to various biotic and abiotic stresses will be initiated. Subsequently, the identified resistant species will be utilised in *Brassica* improvement programme.

Table 1 : Wild crucifers collected from central Himalayas (Uttar Pradesh)

Name	Locality
**Arabis pterosperma* Edgew.	Tapovan and Saldhar
**Barbarea vulgaris* R. Br. (Winter cress)	Gopeshwar
**Capsella bursa-pastoris*(L.) Moench. (*Botyla*, Shepherd's purse)	Malari
Cardamine impatiens L. (**Chamsuru**)	Gairsain
Crambe cordifolia* Steven ssp. *Kotschyana* (bioss) Jafri (pung**)	Somna
Erysimum hieracifolium L.	Tapovan
Lepidium apetalum* Willd. (*Pirwa***)	Niglat, Chopta, Gopeshwar and Tapovan
**L. capitatum* A.K. & T.	Tapovan and Malari
L. sativum L. (**Haling**, **Chamsoor**, Garden Cress)	Leeti
Megacarpaea polyandra Benth (**Barmoola**, **Rooki**)	Tungnath
Rorripa nasturtium-aguanticum (L.)-Hayek (**Gaddri**, Water cress)	Devaldhar
**Sisymbrium orientale* L.	Char Km and Somna
**S. sophia* L.	Char Km

Localities: Niglat, Distt. Nainital; Leeti, Distt. Almora; Remaining localities, Distt. Chomoli (India)

*Seed collected

Another interesting fact of the study of wild crucifers is to elucidate the mechanism of resistance to various stresses. Work on *Camelina sativa* and *Capsella bursa-pastoris* at the University of Alberta has revealed some new sulphur containing, dynamically elecited defence chemicals (Phytoalexins) against certain pathogens. Such naturally occurring chemicals may, therefore, provide clues for the chemistry of novel fungicides. Collection of the germplasm of wild plants from a certain area has to be a continuing process as only

some species are found in the fruiting stage at a particular time of the year. Also, survival of certain wild crucifers and landraces of cultivated crucifers is threatened as result of human activities. Therefore, preservation of biodiversity in this group of plants should be undertaken on an urgent basis so that this valuable resource is not lost.

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