



National Herbarium of Cultivated Plants: A Resource for Study of Crop Genepools



**Division of Plant Exploration and Germplasm Collection
ICAR-National Bureau of Plant Genetic Resources
Pusa Campus, New Delhi 110 012, INDIA**



National Herbarium of Cultivated Plants (code 'NHCP')

- ♦ Located: at ICAR-National Bureau of Plant Genetic Resources, New Delhi; occupies a place among 25 major Indian herbaria.
- ♦ Taxa represented: mainly of cultivated and wild/ weedy relatives, potentially important taxa, native or introduced species for use in breeding.
- ♦ Additional material: seed and carpological samples as complementary collections

Holdings

- ♦ Herbarium specimens: 23,522
- ♦ Seed samples: 3092; Economic products: 712 (representing 266 families, 1,516 genera and 4,128 species)



NHCP

- ♦ Established in 1985 and located in a wing of the ICAR-NBPGR, Old Campus, New Delhi.
- ♦ Specimens housed in specially constructed herbarium cabinets (space savers) with storage capacity upto 50,000 specimens.





Significant Features

- ♦ **Uniqueness:** differs in mandate from other herbaria across the country:
 - emphasis on representation of variability in crops (as cultivars, primitive landraces, wild forms, etc.)
 - wild relatives of crop plants (CWR) from different agro-ecological habitats
- ♦ **Rare cultivars:** as herbarium/seed variability/diversity
- ♦ **Services provided:** reference collections for identification, taxonomic study, resource for teaching on plant taxonomy, ethnobotany/economic botany
- ♦ **Information resource:** scientific/technical input on identification, validation and diversity distribution in India
- ♦ **Teaching:** with Post Graduate School, Indian Agricultural Research Institute, New Delhi
- ♦ **Trainings:** taxonomic know-how on taxa of PGR relevance



Significant Holdings

- ♦ ~ 350 crop plants of India: *Triticum*, *Oryza*, *Abelmoschus*, *Sorghum*, *Avena*, *Coix*, *Echinochloa*, *Colocasia*, *Corchorus*, *Cucumis*, *Brassica*, *Momordica* and *Vigna*



- ◆ 550 crop wild relatives (species number in parenthesis) under genera: *Oryza* (21), *Sorghum* (6), *Vigna* (25), *Cajanus/Atylosia* (10), *Allium* (29), *Abelmoschus* (15), *Solanum* (30), *Cucumis* (11), *Trichosanthes* (9), *Piper* (21), *Curcuma* (24), *Rosa* (19) and *Prunus* (16)

Active Linkages

- ◆ Forest Research Institute, Dehra Dun
- ◆ Botanical Survey of India (all regional circles)
- ◆ CSIR-NISCOM (Wealth of India) Herbarium, New Delhi
- ◆ University of Delhi, Delhi

New Records

- ◆ New taxon: *Abelmoschus tuberculatus*, *Herpetospermum operculatum*
- ◆ New taxa added: species under *Vigna*, *Abelmoschus*, *Cucumis*
- ◆ New recorded uses/ information: *Solena amplexicaulis*, *Abelmoschus manihot* var. *tetraphyllus*



Virtual Herbarium

- ◆ Over 3,500 species of crop genepools (~7,000 images) are maintained as Virtual Herbarium.
- ◆ Herbarium digital resource along with data configured in web-based software in collaboration with AKMU (for exotic taxa; crop wild relatives)
- ◆ Web Linkage: <http://www.nbpg.ernet.in:8080/nhcp/>

Images linked to database for quick access on a family-wise and genus-wise basis and unique identity numbers assigned to herbarium specimens (HS numbers)





Basic Studies

- ◆ Taxonomy of crop plants of Indian region
- ◆ Representation of difficult groups
- ◆ Representation of crop cultivars, diversity/variability in PGR
- ◆ Herbarium preservation using eco-friendly methods



Facilities

- ◆ *Herbarium laboratory*: processing, drying, poisoning
- ◆ *Net-house*: grow out of material for authentication/ validation, additions through seed material/vegetative propagules
- ◆ *GIS lab*: geo-referencing of collected specimens
- ◆ *Herbarium library*: only selected books/ literature
- ◆ *Outdoor study*: field study in herbal garden, Aravali Biodiversity Parks, etc.

- ◆ **Strengthening**: The NHCP accepts unique and unrepresented genetic resources (as herbarium specimens, seed and economic products) for build-up.
- ◆ **Encourages**: depositing vouchers for future reference and resource for studies on PGR.
- ◆ **Guidelines**: available for use and consultation of NHCP (<http://www.nbpgr.ernet.in>).

Regional Stations/ Institutes contributing

- ◆ NBPGR Regional Station Akola, Maharashtra
- ◆ NBPGR Regional Station, Bhowali, Uttarakhand
- ◆ NBPGR Base Centre, Cuttack, Odisha
- ◆ NBPGR Regional Station, Hyderabad, Andhra Pradesh
- ◆ NBPGR Regional Station, Jodhpur, Rajasthan
- ◆ NBPGR Base Centre, Ranchi, Jharkhand
- ◆ NBPGR Regional Station Umiam, Shillong, Meghalaya
- ◆ NBPGR Regional Station, Shimla, Himachal Pradesh
- ◆ NBPGR Regional Station, Srinagar, Jammu and Kashmir
- ◆ NBPGR Regional Station, Thrissur, Kerala



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