

A guide to the persons from outside Botanical Survey of India intending to identify their plant specimens at Central National Herbarium or to get a certificate regarding their identity or authenticity

The Central National Herbarium (CNH) and the BSI ENVIS Centre at Howrah, regularly receive queries from persons outside Botanical Survey of India (BSI) for identification / authentication of plant specimens from CNH, Howrah.

It is advisable that before bringing / sending the plant specimens for the purpose of identification / authentication in CNH one may collect, process and mount the plant specimens according to the procedure mentioned below:

- ❖ Collections should be made from healthy plants.
- ❖ In case of small herbaceous plant, the entire plant with roots should be collected but in case of a shrub or a tree a twig of suitable size should be cut in such a way so that it can be accommodated properly on approximately 41.5 × 28 cm mounting sheet. **The specimen should be with flowers / fruits or both because without flowers / fruits, a plant cannot be correctly identified.** The collected specimen has to be placed within several layers of drying papers such as blotting papers or newspapers and the bundle has to be kept within a drying press (approx. A3 paper size) fastened with straps. If a drying press is not available pressure can be applied by placing heavy books like encyclopedias, telephone directories, etc. on the bundle. The blotting papers or newspapers have to be frequently changed, especially when the plant specimen is fleshy or during the rainy season, till the specimen is completely dried. At the time of collection, a small paper tag bearing a collection number should be attached with the specimen with thread and the field note should be recorded in a field book against that number. This will help in preventing mixing of recorded field data of different collections and in referring to a particular collection during future studies.
- ❖ While pressing a plant specimen the following things should be kept in mind.
 - ✓ Leaves should not be folded
 - ✓ One leaf should not overlap the other leaf
 - ✓ The leaf should not cover the flowers or fruits
 - ✓ A leaf and a flower should be reversed for easy study of their undersurface
- ❖ Then the specimen should be poisoned by dipping it in a saturated solution of mercuric chloride and ethyl alcohol. During the process of poisoning, rubber / plastic gloves, brush, forceps and nasal mask should be used because **mercuric chloride is highly poisonous and corrosive.** The hands should be thoroughly washed after poisoning and even after handling the poisoned specimens every time.

- ❖ The specimen has to be completely dried again. It is then fixed on a mounting sheet with the help of the common glue (prepared mainly from 'sirish') available in the market as flakes. Thick parts of the specimen may be stitched onto the sheet by using a good thread. The glue is prepared after boiling the flakes in water till a thick sticky liquid is produced. Sometimes Fevicol diluted with water is also used. These adhesives are applied on the lower side of the specimen with the help of a brush. The specimen is to be carefully placed on the sheet keeping adequate space at the lower right hand corner of the sheet where the herbarium label is usually pasted. The specimen has again to be kept under adequate pressure for a couple of days or so. It would then firmly attach to the sheet. In case of small herbaceous plants, more than one specimen can be mounted on the same sheet.
- ❖ The herbarium label (approx. 11.5×10 cm) should contain the following details viz., field number, locality of collection, date of collection, distribution, common / local name(s), flower colour, habit (i.e. herb, shrub, tree or climber), habitat, or any other relevant field data / observations, etc. All available data should be recorded therein.
- ❖ The mounted specimen with the aforementioned recorded data is now ready for identification or authentication of the stated identity.

For more detailed information on herbarium procedures one can go through the following books:

- Bridson, D. & L. Forman. eds. 1998. The Herbarium Handbook. 3rd ed. Royal Botanic Gardens, Kew (Reprinted 1999).
- De Vogel, E.F. 1987. Manual of Herbarium Taxonomy: Theory and Practice. UNESCO, Jakarta.
- Fosberg, F.R. & M.-H. Sachet. 1965. Manual for tropical herbaria. Int. Bur. Pl. Tax. & Nom., Regnum Vegetabile Vol. 39. Utrecht.
- Jain, S.K. & R.R. Rao. 1977. A handbook of field and herbarium methods. Today & Tomorrow's Printers and Publishers, New Delhi.
- Victor, J.E., M. Koekemoer, L. Fish, S.J. Smithies, M. Mossmer. 2004. Herbarium essentials: the Southern African Herbarium user manual. Southern African Botanical Diversity Network Report No. 25. SABONET, Pretoria.

It would be worth mentioning here that the herbarium is a place where the mounted specimens are kept arranged according to a particular system of classification and the specimens deposited in the herbarium are referred to as 'herbarium specimens'.

All herbaria are regularly sanitized for preventing fungal infections and insect pests.

In CNH one can identify their plant specimens themselves or with the help of the staff-members of CNH after seeking permission from the Scientist, In-Charge, CNH, BSI. For this no fees would be charged. All specimens brought from outside are to be re-poisoned / kept in the deep freezer for 72 hours before they can be taken inside the herbarium. This is done to prevent fungus and pests that come with the outside specimens and affect the herbarium specimens.

If they need a certificate from the Scientist, In-Charge, CNH regarding identification / authentication of plant specimens, then they can either bring here their specimens on their own or send them by post. In either case, reasonable time has to be given for the process of identification / authentication. For each specimen, a charge of Rs 50/- is applicable to the scientists, research scholars, students, etc. A charge of Rs. 100/- will have to be paid for each specimen by the persons from NGO's, Commercial Organizations, etc. Payment in cash is acceptable only if they pay personally while receiving the herbarium specimens and certificate. Otherwise they should send the required charges **by demand draft payable to “Accounts Officer, P.A.O. (BSI/ZSI), Kolkata”** only after receiving intimation from the Scientist, In-Charge, CNH about the exact amount of money to be paid. If payment is made by demand draft, the herbarium specimens will be retained and the certificate will be sent by post to their stated address. However, if the persons want to have their specimens back, then either they will have to collect the specimens by hand or pay for packing and postal charges for the same.

The postal address for sending the specimens, along with other contact numbers and email ID are given as follows:

Scientist-in-Charge, Central National Herbarium, Botanical Survey of India, P. O.
Botanic Garden, Howrah 711 103, West Bengal.
Fax: (033) 2668 6226; Phone :(033) 26683235
Email: calherb@yahoo.co.in

Adequate measure should, however, be taken while packing the specimens because they often break during the process of transit. Specimens which have not been properly processed will be destroyed.

The information given, so far, is applicable only for Angiosperms. Other plant specimens belonging to Gymnosperms, Pteridophytes, Fungi, Algae, etc. may also be identified / authenticated subject to availability of experts working in these plant groups.

It is advisable that collections from Bihar, Jharkhand and West Bengal are to be sent to CNH, but specimens collected from other regions should be sent for identification / authentication at first to the respective Regional Centres of BSI from whose territorial jurisdiction the plants have been collected. The postal addresses, contact numbers and email IDs of the Regional Centres are given as follows:

Scientist, In-Charge, Botanical Survey of India, Andaman & Nicobar Regional Centre,
P.O. No.: 692, Haddo, Port Blair 744 102, South Andaman.

Fax: (03192) 230120; Phone: (03192) 233224
E-mail ID of the office: bsianrc1972@rediffmail.com; anc@bsi.gov.in
Territorial jurisdiction: Andaman & Nicobar Islands.

Scientist, In-Charge, Botanical Survey of India, Arid Zone Regional Centre, near Khema Ka Kuan, Pal-Basni Canal Link Road, P.O.: Nandan Van, Jodhpur 342 008, Rajasthan.
Fax: (0291) 2741736; Phone: (0291) 2740415/ 2747163
E-mail of the office: bsiazc@yahoo.com
Territorial jurisdiction: Rajasthan, Gujarat.

Scientist, In-Charge, Botanical Survey of India, Arunachal Pradesh Regional Centre, Post Box No. 127, Sankie View, Itanagar 791 111, Arunachal Pradesh.
Fax: (0360) 2211713; Phone: (0360) 2291018
E-mail ID of the Scientist, In-Charge: aamao2001@yahoo.co.in
Territorial jurisdiction: Arunachal Pradesh.

Scientist, In-Charge, Botanical Survey of India, Central Regional Centre, 10 - Chatham Lines, Near Prayag Railway Station, Allahabad 211 002, Uttar Pradesh.
Fax: (0532) 2250179; Phone: (0532) 2441192
E-mail ID of the office: bsi.crcald@gmail.com
Territorial jurisdiction: Madhya Pradesh, Chhattisgarh and Uttar Pradesh.

Scientist, In-Charge, Botanical Survey of India, Deccan Regional Centre, ZSI Campus, Plot No. 366/1, Village – Attapur, Near Office of DFO Flying Squad, Inner Ring Road, P.O. Hyderguda, Hyderabad 500 048, Andhra Pradesh.
Fax: (040)2400 2287; Phone (040) 2002 0666
E-mail ID of the office: bsi_deccancircle@rediffmail.com
Territorial jurisdiction: Andhra Pradesh and Orissa.

Scientist, In-Charge, Botanical Survey of India, Eastern Regional Centre, Woodland Campus, Lower New Colony, Laitumkrah, Shillong 793 003, Meghalaya.
Fax: (0364) 2224119; Phone: (0364) 2223971
E-mail ID of the office: bsibsishll@yahoo.co.in
Territorial jurisdiction: Assam, Manipur, Meghalaya, Mizoram, Nagaland and Tripura.

Scientist, In-Charge, Botanical Survey of India, Northern Regional Centre, 192 - Kaulagarh Road, Dehradun 248 195, Uttarakhand.
Fax: (0135) 2757951; Phone: (0135) 2753433 / 2755478
E-mail of the office: bsinc2001@rediffmail.com
Territorial jurisdiction: Himachal Pradesh, Uttarakhand, Jammu & Kashmir, Punjab, Haryana, Chandigarh and Delhi.

Scientist, In-Charge, Botanical Survey of India, Sikkim Himalayan Regional Centre, below Rajbhawan Campus, P.O. Rajbhawan, Gangtok 737103, Sikkim.
Fax: (03592) 204717; Phone: (03592) 202789

E-mail of the office: bsigangtok@hotmail.com
Territorial jurisdiction: Sikkim.

Scientist, In-Charge, Botanical Survey of India, Southern Regional Centre, T.A.N.U.
Campus, Lawley Road, Coimbatore 641 003, Tamil Nadu.
Fax: (0422) 2432835; Phone: (0422) 2432123
E-mail of the office: bsisc@rediffmail.com ; sc@bsi.gov.in
Territorial jurisdiction: Kerala, Tamil Nadu, Pondicherry and Lakshadweep.

Scientist, In-Charge, Botanical Survey of India, Western Regional Centre, 7 - Koregaon
Road, Pune 411 001, Maharashtra.
Fax: (020) 2612 4139; Phone: (020) 26122125 / 26139512
E-mail of the Scientist-in-Charge: pgdiwakar@hotmail.com
Territorial jurisdiction: Maharashtra, Goa, Karnataka, Dadra, Nagar Haveli & Daman
Diu.

In case identification / authentication could not be done in these Regional Centres,
then definitely one has to contact CNH.

It should be mentioned here that the aforementioned procedures will not only help
to ensure quick and proper identification / authentication of plants but will also help to
preserve them for future studies, if required.

The images of four herbarium sheets with flowers / fruits are finally provided to
show how properly pressed plant specimens look like.





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