

xiii, fig. 6 (1865). Forma *nanum* (as *nana*) (Milde) Luer. l. c. 713 (1889), wrongly ascribed to Milde who had it as a var.

This extreme form, with very many essentially uniform filiform or capillary branches ascending from an abbreviated base was well illustrated by Milde. Klinge, publishing the herbarium-name of Lackschewitz, cited var. *nanum* Milde and especially his figure as the same form. It is well represented by such specimens as *Fernald & Long*, no. 1186 from Main River, Bonne Bay, Newfoundland; *Victorin*, no. 15,038 from Lac St.-Jean, Quebec; *A. A. Eaton*, no. 130, from Fort Kent, Maine; *Fernald & Pease*, no. 16,987 from Errol, New Hampshire.

THE USE OF DDT IN THE PREPARATION OF BOTANICAL SPECIMENS

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Botanists who collect plant materials in the tropics are confronted with the problem of protecting their plants from insect attacks while in the press and while in storage, once dry. Specimens are usually collected in large numbers, with reasonable care being taken to remove unsightly specimens or those badly infected with insects. The specimens are then placed between newspaper and dried rapidly over artificial heat or by slower solar heating. When dried, the plant specimens are tied in bundles and kept in a dry place until they can be shipped or brought back to the United States.

The amount of artificial heat used in drying specimens is rarely enough to kill the insects trapped in the flowers or fruits. Thus, during the storage period these insects may continue to destroy the specimen, or insect eggs may have an opportunity to hatch and the larvae feed on the dried plant material. The capacity of many insects in devouring plant specimens is amazing. In a relatively short time all the anthers and pollen, the complete flower, or in certain genera and families even the complete plant will be eaten by infesting or trapped insect pests.

In an attempt to control this insect deterioration of specimens, both in the drying process and while in storage, the author tried various combinations of commercial DDT during several months of collecting in the Dominican Republic last fall. Com-

mercial DDT was purchased from drug and hardware stores and was used in three ways: 1. straight or 100% DDT, powdered, 2. 10% DDT mixed with talc, and 3. 10% DDT mixed with paradichloró-benzene. These products were applied to the specimens by using a large salt shaker or a cardboard box in which holes had been punched. The specimens were arranged on the newspaper and were sprinkled lightly with DDT. Any thick or heavy flowers or fruits were given a larger dosage of DDT than the leaves. Specimens from the special families listed below were also given heavier dosages of DDT. After the specimens were dry and the plants were tied in bundles ready for storage, all sides of the packages were dusted heavily with DDT.

The results of this treatment were very satisfactory. For the first time in the tropics the author was not bothered with insect damage and specimens could be stored in airy and dry rafters or rooms without worry or the need of constant inspection. The results were evident in a short time, since DDT killed most insects within thirty minutes after contact. Specimen sheets showed dead insects and larvae where the animals had crawled from the dusted specimens and died before reaching the edge of the paper. No living insects were found in any of the bundles, and there was no contamination from the outside after three months of storage. In addition, it was found that when sprinkling DDT on the plants while preparing the specimens some of the compound landed on the floor. After the debris was cleaned up, enough DDT was left on the premises to keep the room or camp site free from cockroaches, ants, spiders or scorpions for as long as the camp was used.

Many people still regard the use of DDT as dangerous. It is not if a little care is taken in its use. DDT is not dangerous in small quantities, but it should not be dusted on food or food containers nor should too much be inhaled. I do not know anyone who is allergic to DDT. It will not harm the skin; in fact, during the war it was reportedly used as a dusting powder for body insects.

Once the specimens have arrived at the laboratory or are ready for mounting, most of the powder can be blown freely from the specimens. If a specimen was damp or if heavy application of DDT was necessary, this powder may have caked and can then

be removed with a small paint brush or a camel's hair brush. Any grains of DDT remaining on the specimen will give lasting protection against insects in the herbarium.

It is worth noting that certain families of plants in the tropics are more likely to be infected with insects than others. These same families are more frequently attacked in the herbarium, insects often showing a decided preference for these groups. Included are the following families: Bromeliaceae, Liliaceae, Iridaceae, Zingiberaceae, Orchidaceae, Cruciferae, Capparidaceae, Leguminosae (particularly Cassia), Malvaceae, Melastomaceae, Onagraceae, Solanaceae, Ericaceae, Asclepiadaceae, Lobeliaceae, and Compositae. Specimens from any of these families should be protected by dusting with DDT when the specimen is prepared in the field.

For my own work 100% DDT is preferred. Only a light dusting is necessary when the worker knows that every particle is effective. That may be wasteful, but DDT is reasonable in price and can be used freely. The mixture of DDT and para-dichloro-benzine was used to test the para-dichloro-benzene as a repellent and also as a drying agent. The repellent effect was not evident, since all insects were killed, and the drying effect on such groups as the Orchidaceae and Bromeliaceae was scarcely noticeable.

It is certainly felt that the slight extra effort of applying DDT in the field was worth the peace of mind and the improved specimens free from insect damage.

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VICIA SEPIUM IN NEW BRUNSWICK.—The pretty *Vicia Sepium* L. has been under observation by the writer since 1941. It has definitely established itself here at Grand Falls, N. B. in a waste place along the top of a bank of the Saint John River; and it continues to spread. Older manuals list the plant from Maine, New Hampshire, Quebec and Ontario. Yet Marie-Victorin in his *Flore Laurentienne* does not mention it. For the Quebec record see H. E. Sargent in RHODORA 2: 225. 1900. Dr. Fernald also reports it from Nova Scotia in RHODORA 24: 176. 1922. As a voucher for this record of *Vicia Sepium* from New Brunswick, specimens, *Habeeb*, July 24, 1947, Grand Falls, N. B., have been deposited at the Gray Herbarium.—HERBERT HABEEB.



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