Section II

REVIEW OF LITERATURE
AND PRESENT STUDY
Review of literature:

Hooker (1904) remarks that the vegetation of the Khasi Hills of Meghalaya is 'the richest in India and probably in all Asia.' But in spite of this richness of vegetation and flora, this part of the country largely remains under explored. Though, plant collections in this region have been made ever since the time of Buchman-Hamilton (1820), Roxburgh (1820-24), Wallich (1820, 1829-32), Griffith (1847), Hooker (1854, 1872-97), Burkill (1925), Fischer (1938), Bor (1940, 1960) a comprehensive flora of this region remains to be worked out. The only regional account of the flora is that of Kanjilal et al (1934-40), which is incomplete having no reference to monocots (except Poaceae) and deals mainly with the woody forest species. After the reorganization of the Botanical Survey of India and setting up of a regional circle at Shillong in 1956 this part of the country and the north-eastern region as a whole has received much attention botanically, and a few district or state floras have been worked out in the form of Doctoral dissertations (Joseph, 1968; Balakrishnan, 1971; Verma, 1971; Kataki, 1971), which are still unpublished. In spite of all these there is a conspicuous lack of work on the weed flora of Meghalaya.
The only scanty accounts on weeds of Meghalaya are those of Malhotra and Jain (1978), Rao (1976), Rao and Rao (1978), Rao and Neogi (1978), Dey (1978). But other parts of the country have received much more attention in this direction (Singh, 1937, 1938, 1941; Paul, 1956; Thakur, 1954; Haq, 1955; Chakraborty, 1957; Maheswari, 1961; Mazumder, 1962; Oza, 1962; Datta and Maiti, 1964; Tripathi, 1964; Mahapatra et al., 1965; Baksha, 1966; Dixit et al., 1968; Singh, 1969; Bandhopadhyay, 1972; Bir, 1976). Some illustrative accounts of weeds have also been provided by Datta (1972) and Tadulingam et al. (1956). Similar accounts have been published from time to time elsewhere also (Anonymous, 1976).

While the above studies mostly deal with the taxonomic account of the weeds, there are also some studies dealing with the autoecology and weed-crop interaction with reference to our Indian Agro-ecosystems (Singh and Khanna, 1965; Sarna, 1961; Pandey et al., 1966; Roy, 1970; Battacharjee, 1970; Tripathi, 1971, 1977; Datta and Roy, 1972, 1973; Datta and Biswas, 1973).

Aquatic weeds in India have received much attention (Narayan, 1928; Biswas, 1937; Pattanaik, 1956; Mirashi, 1957, 1958; Puri et al., 1958; Sen, 1959; Maheswari, 1960; Chavan, 1961; Seervani, 1962; Subramanyam, 1962; Satayamayrayan, 1963; Vyas, 1964; Jha, 1965; Mazumder, 1965;

A study on exotic weeds of our country has been attempted by various workers (Prain, 1890; Brühl, 1908; Kashyap, 1924; Biswas, 1934; Raizada, 1935, 1936; Srivastava, 1954, 1964; Maheswari, 1960, 1961, 1976; Mathew, 1969; Rao and Rao 1978; Rao and Suryanarayana, 1979). Again such studies in Meghalaya are scanty.

**Present study:**

In view of the conspicuous lacuna in the study of weeds of agricultural land and fishery tanks in Meghalaya, the present study was initiated in the year 1976. Though the primary aim of the present study is to emphasize the weed flora of the region, some account of ecology and ethnobotany of weeds is also attempted.

For a systematic study of weeds, seasonal surveys have been made regularly from different agricultural fields at different parts of Meghalaya for collection of weed species. While collecting the weed species, data like habit, correct habitats and its associates, abundance, colour of leaves, flowers and fruits, aroma if any, and such
other detailed informations are also noted in the field book. Local uses of weeds, if any, are also recorded with the help of local villagers and others familiar with the uses of plants. Pressing, poisoning, mounting and preservation of plants collected is in conformity with the normal herbarium procedures as discussed by Santapau (1955) and Jain and Rao (1976), and needs no elaboration here. Of the 4 sets collected one complete set has been preserved in the herbarium of North-Eastern Hill University (NEHU) and the remaining duplicate sets have been kept for exchange/gift purposes.

All the weed species collected were identified with the help of existing regional flora and later confirmed by matching them in the Herbarium of the Botanical Survey of India, Eastern Circle, Shillong (ASSAM).

In the taxonomic treatment, the arrangement of the families follows the system of Cronquist (1968). The key to species under each family is direct rather than passing through genera as it is customarily approached. Citation for the species is kept to a minimum so as to include only original citation, Flora of British India, Flora of Assam and other important monographs or papers from this region, if any. The detailed descriptions and illustrations (where given) are based on voucher specimens deposited in this herbarium. Illustrations have been given in general.

*The abbreviation 'NEHU' for the Herbarium of the North-Eastern Hill University is yet to find a place in 'Index Herbariorum.'
for the species which are rather interesting, dominant and/or difficult to identify with the help of floras. 
Brief notes about the distribution, habitats, phenology, etc., are also given at the end of each species.
Local names of plants where available are given and indicated as 'K', 'G', 'J', 'B', 'A', 'E', etc. against their names which refer to Khasi, Garo, Jaintia, Bengali, Assamese and English names in the region.

Some account of ethnobotany (study of plants in relation to local inhabitants) is also attempted and a large number of useful or beneficial weed species are brought to light. This information about the uses of plants is actually gathered from local people during plant collection trips.

Ecological aspects like seasonal variation and phenological pattern of some selected dominant weeds have been studied with reference to varying altitudes in the State. The three important sites selected are Byrnihat (100 m), Nongpoh (595 m) and Shillong (1496 m). Ten dominant weed species were selected for study of the seasonal variation. One m² quadrat was used for finding the density and frequency of weeds. The number of quadrats varied depending on the area of the fields and were studied randomly for all months.
For phenological studies different stages in the life of a weed species like germination (G), vegetative (V), flowering (Fl), fruiting (Fr), seeding (S) and even death (D) are considered and is shown with the help of a symbolic benzene ring, where each angle of the ring represents a stage in life of a plant. 20 dominant weed species were considered for this purpose.