D. SUMMARY & CONCLUSION

Summary:

1. A critical study of the herbaceous angiospermic plants of Tezpur sub-division has been made providing detail account of the sub-division as regards to its physiography, drainage system, geology, soil and climatic condition which have great impact on the growth and development of vegetation.

2. Reviewed literature of the past botanical exploration and floristic account of Assam (s.l) as a whole and Tezpur sub-division in particular. Efforts have been made to collect data on information of utilisation of plants and subsequent verification with the literature.

3. Several field trips were conducted in different seasons to different areas of the sub-division for extensive collection of plants. This has resulted in drawing out a wide variety of plant wealth and resources of economic plants of the sub-division and showed the richness of floristic diversity of the area.

4. Adequate field observation has been made for each and every species. The information on vernacular names, habitat, ecology, associated plants, place(s) of collection, date of collection, time of flowering and fruiting were recorded. Sufficient information regarding economic utilisation of the plants have been collected from the locals and the aborigines residing in different parts of the sub-division. Photographs of vegetation, rare and endangered plants in their natural habitats as also plants brought under cultivation have been taken and presented here for illustration.

5. Properly processed plant specimens have been mounted on standard herbarium sheets.

6. Morphological characters of the collected plant specimens have been studied critically. Floral characters have been studied in detail by dissecting the flowers. By comparing these characters with the Monographs and the Floras the plants have been identified.
7. For confirmation of identification and for the identification of unidentified plants, the mounted plant specimens have been compared with the herbarium specimens of Botany department, Gauhati University, Kanjilal herbarium, Shillong (Assam), Herbarium of Orchid Research Centre, Tipi, Arunachal Pradesh and finally of Central National herbarium, Howrah (Cal.)

8. Analytical drawings of some 65 species in 62 plates have been provided based on live specimens for correct identity of plants.

9. As many as 463 species belonging to 310 genera included in 86 families have been enumerated. A dichotomous Key to the identification of the families of Angiosperms has been drawn out mostly on the basis of diagnostic characters and the keys for genera, species and varieties are likewise given under their respective families, genera and species when the number of genera, species and varieties are more than one.

10. Families have been arranged according to Bentham and Hooker's system of classification (1862-1883) with incorporation of slight modification as to splitting of families that are internationally accepted.

11. For each and every species the latest accepted International names of the plants have been given in bold letters with their full citations consulting recent publication of Floras, Monographs and published papers. Citation of references of Flora of British India and Flora of Assam with their volumes and pagations have been given, in case not found in those books references of neighbouring published Flora have been cited. As far as possible published vernacular name(s) has been provided which has been followed by a brief description, ecological adaptation, associated plants, phenological data, places of occurrence etc.

12. Diverse usages of plants collected from the local people and the aborigines during field trips have been provided along with the plants or parts of plants used and the forms of uses.

13. The information on established report of economic uses of the plant species are based on a number of published literature and authentic publications on Indian
systems of medicine so as to bring out efficacy of economic uses of plant or plants concerned.

14. Distribution pattern of herbaceous angiospermic plants has been investigated and found out interesting findings. *Calopogon mucunoides* Desv, *Fimbristylis argentea* Vahl, *F. ferruginea* (L.) Vahl, *Hypericum petiolatum* H.f.&T, *Mimosa invisa* C. Maritus ex Colla, *Ranunculus laetus* Wallich, *R. trichophyllus* Chaix and *Stellaria himalayensis* Majumder have been recorded for the first time as new record of plants for North East Region. *Commelina sikkimensis* Clarke, *Cyperus niveus* Retz, *Eleocharis palustris* (L.) R. Br., *Fimbristylis tetragona* R.Br. and *Isachne clerkei* Hook have been found as new to Assam. *Cleome rutidosperma* DC., as many as 15 species of Cyperaceae and 3 species of poaceae show their extended distributional area up to Sonitpur district.


16. In terms of diverse usages an assessment of vegetable wealth has been made and found that out of total 463 plant species 295 have been found to be of medicinal plants, 79 species used as vegetables. This assessment shows the richness of the sub division with economically viable herbaceous plants. The investigation also revealed as many as 58 species having industrial uses like manufacture of paper, straw board, food, vegetable oil, hair oil, soap, perfume, agarbatti etc and some species of herbaceous plants have been found to be utilised by the local as well as the aboriginal people in making hats, coarse mats, brooms, roofing materials dye etc.

17. The text has been concluded with a citation of selected references.
Conclusion:

In conclusion it can be opined that the floristic composition of Tezpur subdivision is highly rich and attractive to the botanists, environmentalists, agriculturists and the scientific explorers of different fields. Almost all varieties of plants relating to different climatic conditions are available in this region. Various types of floristic elements of vast economic value and scientific interests have been preserved in this area having scope for better utilisation.

On the basis of the present exploration and field studies some of the extremely rare and endangered species Viz. *Abutilon indicum* Gaertn, *Andrographis paniculata* Nees, *Catheranthus roseus* (L.) G. Don, *Costus speciosus* (Koenig) Smith, *Cymbidium aloifolium* (L.) Sw., *Dendrobium transparens* Lindl., *Dioscorea belophylla* Voigt ex Haines, *Gloriosa superba* L., *Rauwolfia serpentina* (L.) Benth., *Rhynchostylis retusa* (L.) Bl. and *Zeuxine longilabris* (Lindl.) Benth. ex Hook. f. have been collected which need utmost care for in situ protection and preservation and ex situ conservation of endangered ones be taken up for mass culture for introduction in their natural habitats. Medicinal value of the plants of this area form one of the most important aspects of the flora. These plants have immense ethnobotanical significance. The different groups of people of different localities of this region use different plants in order to cure themselves from various diseases. This needs chemical analysis and scientific confirmation for the facts and acceptance.

These valuable wild plants are seen to be disappearing gradually due to merciless destruction. Plants are being cut recklessly for the various purposes such as for timber, fire wood, furnitures etc. and cleared off for monoculture of *Tectona grandis* L.f., *Shorea robusta* Gaertn. f., *Dalbergia sisso* Roxb. etc. and for planting of decorative plants. The herbaceous plants are also grazed up voraciously by stray cattle. More over the increasing population, encroachment to the Reserved Forest boundaries, gradual urbanization of villages the vegetation has been disturbed. Due to construction of residential buildings and network of roads hillocks are extensively cut down which not only changed the natural topography
of the area but also influence the plant growth as well. The unchecked destruction of forests as also commercial exploitation of medicinal plants rapidly changing the eco system and are responsible for the changing of the floristic pattern of this region and causes the scarcity of many species.

The present work has enumerated 463 species, out of 463 nearly 80% have been found to be economically viable of which some 295 species are found to be of medicinal use. So protection and conservation of atleast these plant species should be made by creating awareness among the locals. Not only the authorities of State Government of Assam but also the Central Government should come forward for taking necessary steps for protection and preservation of plants in their natural habitats.

The present research investigation has amply been justified for the compilation of a comprehensive literature on the Herbaceous angiospermic flora of Tezpur sub-division based on extensive taxonomic studies and analysis of plants leading to the economic uses and importance will be of immense benefit not only for the people of the area but also for the entire population of Assam. More over the taxonomists of Assam in particular will be greatly benefitted from such a study of the floristic composition of this region. The great scholarly volumes of “Flora of Assam” which is still incomplete will be enriched to a great extent, particularly for this part of Assam.