From the beginning of human civilization, man has been in search of ways of cure and relief from illness. In India, the history of medicinal plants dates back to the Vedic period (4500 B.C. to 1500 B.C.). This country with a rich diversity of flora is the world’s natural botanical garden. Moreover, with this large reservoir of medicinal and aromatic plants, we can command over the world herbal scene. Though the Govt. of India provides legal support for the protection of natural resources, but its implementation is not adequate. So, a detailed work for the preservation, maintenance and promotion of various medicinal plants are essential to conserve and multiply the Indian medicinal plants. Again, the recent trend towards the use of medicinal plants as alternate and ethnic medicines has stimulated the researchers to engage themselves in domestication and developing techniques for faster propagation of medicinal plants.

In the present piece of work, two fern species, viz. *Adiantum capillus-veneris* L. and *Adiantum lunulatum* Burm. f. (Family- Adiantaceae) were taken into consideration to study their reproductive biology, phytochemical analyses and antimicrobial spectrum. Adiantoid ferns have a long history of medicinal use in the Indian ayurvedic system, Tibetan system of drugs and herbal medicinal systems of many other countries. These ethnobotanically important ferns were very popular in the countries like Amazonia, Brazil, Egypt, England and other European countries as well as in India, Iraq, Jamaica, Mexico, Peru, Spain and United States of America.

Though the adiantoid ferns have long hold a place in the herbal medicinal system world-wide, yet the plants were little used in the modern herbalism. The reason is quite unknown. The exact chemical quantification was appropriately not ascertained so far. Though there are few reports of its antimicrobial activity but these are very meagre and discrete.
Inspite of having a large medicinal importance, ferns have not attained the status of research as that of seed plants. Many valuable medicinal ferns are either not explored or otherwise lost importance of study due to the over dominance of seed plants. The present investigation was done to bring back these medicinal important ferns (at least two) into the mainstream of research for its immense biochemical and ethnobotanical values, as reported in the literatures. Moreover, the use of gametophytes as a prospective material of medicinal value was used for the first time in these plants and of course for the first in ferns. Use of fern phenolics as antimicrobial agent was also a first attempt, so far known.

The work has been divided into five chapters. Chapter- 1 highlights the summary of the work. Chapter- 2 deals with reproductive calendar of the sporophytic plant bodies, spore viability under different preservation conditions and apospory induced by the effects of photoperiod. Chapter- 3 deals with the phytocemical analyses of the sporophytes, spores and the gametophytes and also the identification and isolation of phenols. Chapter- 4 deals with the antibacterial and antifungal assay of the sporophytes and the gametophytes and chapter 5. contains the references.

But, I believe strongly that a lot of work could be done on the foundation offered by me. I shall be indebted to everyone who provides suggestions for the scope of its improvement.

Date: The 30th October, 2006
Place: Burdwan

Piyali Guha (Ghosh)