

CHAPTER – 3:

*RESEARCH QUESTIONS AND
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The overall aim of the present study was to find out the possible health deteriorating as well as health promoting properties in this fern. If the fern contains any toxic properties, then the people can be made aware of the harmful effect of consumption of this fern and thereby to advance the existing knowledge about *D. esculentum* as food in relation to human health. Apart from its possible harmful effects, *D. esculentum* may have some health promoting effects too as this fern has been used as ethnomedicine among some tribes in India. Therefore, identification of potential therapeutic prospect of this fern is also a major concern of this study.

3.1. RESEARCH QUESTIONS

A number of research questions arose from different literature reviewed in the previous section in relation to the different aspects of *D. esculentum*:

1. It is observed that this fern is rejected as food by animals including cattle and insects. This fern grows abundantly in the marshy land and also in the wet shabby places where lot of insects are available. But it is interesting to note that no insect has been found consuming the leafy portion of this fern. Leaves are all intact, not taken by any insect and even cattle. Therefore, the obvious question that comes to mind is that whether this fern contains any toxic metabolites for which the insects as well as other animals avoid consuming this fern.
2. The most popular use of *D. esculentum* is as food. Different literatures revealed that some of local inhabitants of different parts of India and elsewhere in the world use raw, uncooked *D. esculentum* as food. Therefore, it is a very natural question to ask whether this raw, uncooked *D. esculentum* will be suitable as a food or not.
3. In most of the occasions, *D. esculentum* is taken as food after thorough cooking, either boiled or stir fried, among the people who regularly consume this fern. But is it possible to destroy all the toxic metabolites, if any, from this fern during cooking?

4. Is it possible that this fern may have some beneficial properties as it is evident from some studies that apart from its use as a food, *D. esculentum* has been used as ethnomedicine among some tribes in India?

3.2. OBJECTIVES OF THE PRESENT STUDY

1. To study the immunomodulatory activity of *D. esculentum* in mouse.
2. To study the effect of *D. esculentum* on the reproductive functions of mouse.
3. To investigate the neuromodulatory activity of *D. esculentum*, by studying its effect on the cholinergic nervous system of mouse.
4. To investigate the effect of *D. esculentum* on some major organs of mouse, viz. liver and kidney, by studying several enzymes, metabolic products and histological examinations.