ABSTRACT

The use of plants and their products to cure different types of ailments have been in practice since time immemorial. Evidences on the use and study of herbs dates back to the Vedic age where description on plants as medicine is well-established. Indigenous or folk medicine comprises knowledge or information systems that have developed over generations among various societies before the advent of modern medicine. The most commonly acknowledged traditional systems of medicines followed by majority of the people in rural areas in India includes Ayurveda, Unani or Graeco-Arabic medicine and the Siddha system of medicine from South India. The Ayurveda system is primarily based on herbs. These plant based medicine are used by the people to cure different types of diseases including reproductive related ones. Reproduction and development are influenced and regulated by several factors such as the hormones and environment. Hormones produced by the endocrine system of the body are responsible for maintaining the male and female sexual characteristics. The mammalian endocrine system is extremely dynamic and undergoes frequent physiological variation owing to diurnal deviation and cyclic hormonal feedback system. To carry out a proper healthy reproductive life the endocrine components (testis and the ovary) and the nervous system work together in an intricate mode of co-ordination. The other factors like the endocrine disrupting chemicals (EDC) present in the environment, due to its affinity towards the hormonal receptors, also exert influence on the reproduction of animals. Most of the medical treatments on reproductive disease that are prevalent today are not free from side effects. Moreover the cost involved in it is also a cause of concern. Folk medicine have been claimed to have a very promising results, as far as reproductive disease is concern. Considering the prevalence of traditional medicinal practices followed among the Mising community of upper Assam districts
A B S T R A C T

(herbs used to treat reproductive related ailments) and the efficacy of the plant extract in the
treatment of different disease as revealed from literature this study was proposed to be taken.

At the very outset, a survey has been taken up to investigate the uses of the plants by the people
of Mising community for curing reproductive health related disorders. Datas were collected from
the traditional healers, the bej/bejanis and the women folk by visiting them in their villages, with
pre-set questionnaires and through oral interviews. Survey revealed that about 16 plants species
belonged to 12 families. On the basis of criteria of interest, the plant *Plumeria acuminata* Ait.
was selected, and its stem extract was administered to female albino mice to study its effect on
the reproductive parameters. The extract was prepared in a soxhlet apparatus. For phyto-
chemical analysis, standard procedure available in literature was followed. Estrogenic effect of
the plant was determined by using adult ovariectomized mice following the OECD guidelines
(Uterotrophic assay on Rodent). After treatment of the mice by the plant extract for seven days,
the uterine weight, uterine protein, uterine histology and serum cholesterol level were studied.

For authentication of the effect of the plant extract on reproductive parameters, the methanolic
stem extract was administered for seven days to adult ovary intact mice and parameters like
uterine weight, uterine protein, uterine histology, ovarian weight, and ovarian histology were
studied. In another set of experiments, the extract was administered for 22 days (15 days prior to
mating and during the first seven days of gestation period). In this treatment, the vaginal smears
of all the animals were examined to ascertain the effect of the extract on the estrous cycle. On
15th day of treatment, the mice were allowed to mate. The females were sacrificed on the 10th
day of gestation and implantation sites were studied. To investigate the fertility/anti-fertility
property of the extract, the experiments were carried in the same way as described above. After
mating the mice were allowed to carry pregnancy until parturition. Upon delivery, the litter size, litter weight and length of gestation period were recorded.

The phyto-chemical analysis of the methanolic stem extract of the plant revealed the presence of different metabolites such as flavonoids, saponin, phenolic compounds, alkaloids and terpenoids in addition to carbohydrate and proteins. In both ovariectomized and ovary intact mice, the extract was found to induce significant increase in the wet weight of the uterus, uterine protein content and enlarged histological structures (uterine diameter, myometrial and endometrial thickness, luminal epithelial cell height) in all the treated groups when compared to vehicle treated control. All these indicate a possible estrogenic effect of the plant extract on the treated animal. Further, the number of uterine implantation sites was found to decrease along with the decrease in size of the litter. All these changes in the reproductive parameters of treated mice highlight the possibilities of anti-implantation, anti-fertility/contraceptive property of *P. acuminata* Ait. Further investigations in this field are suggested for isolation and identification of the active ingredients present in the plant extract.