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# GOAT REPELLENT & HERBAL PESTICIDE

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## TRIALS TO DERIVE GOAT REPELLING SOLUTIONS

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### INTRODUCTION :

According to veterinary doctors the cases of food poisoning in Goat is minimal and their threshold level to tolerate toxins is about twelve time higher than any other grazing animals.

From the chemistry, of ungotable plants one can draw a conclusion that those plants which are rich in secondary metabolites like alkaloides, resins, rubber, phenolic extractives, glycosides, saponins and steroides are selectively left ungrazed by a goat.

Some of these plants are Adhathoda vasica (Adulasa), Annona squamosa (Sitaphal), Calotropis gigantea (Rui), Datura stramonium (Dhatura), Nerium indicum (Kanher), Ipomoea fistulosa (Beshrum), Pongamia glabra (Karanj), and Ferula assafoetida (Hing) etc.

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We, therefore, hypothesized that if the extracts of these plants containing secondary metabolities responsible for repelling goats from mother plants is

spreyed on any other edible plant, goat will frown to use them as feeding material. To validate this hypothesis an investigation was carried out at CSV campus, Dattapur. The criteria behind deriving such plant extract was to protect nursery plants maintained in the field without erecting fencing during its juvenile stage. We believed that if goats do not graze a plant in response to an extract than no other herbivour will touch it.

Fresh leaves of these plants were collected and crushed throughly to obtain a homogenous paste. The paste was squeezed to obtain a fresh juice. Alternatively, the paste was mixed with water (200 gm paste per litre) and boiled till the volume of water was reduced to half. The filtered liquid was used as a spray to repel Goats from the seedlings. For obtaining alcoholic extract the paste was mixed with methanol and then concentrated (100 gm/lit.) The alcoholic extract was derived from two plants only namely, Ipomoea fistulosa and Pongamia glabra. In addition to extract the latex of Calotropis and Nerium was collected. In case of Ferula, a gum resin was obtained from market. It was mixed with water (5 gms. in 20 ml) to prepare a liquid for spray. Extracts derived by various methods (viz. Fresh, boiled, latex and solution of,

assafoetida) were sprayed on the nursery saplings and plants which are routinely grazed by goats like Acacias (Babul), Zizipus jujuba (Ber), Cassia tora (Tarota), Euphorbia, etc. About fifty plants of one variety were selected for each treatment. The extract was used without diluting it with any other solvent. The spraying was done by a fine spraying pump routinely used in the fields and gardens.

The extensive experimentation in the field showed that the goat repellent spray gave results which go against this primary belief. Spraying of extracts, derived from leaves of selected ungotable plants. (See materials and methods for details) did not prevent goats from grazing leaves of gotable plants. The concentration of the extract used for spraying was maximum. Application of latex from Calotropis & Nerium on the foliar part did not protect plants from goats.

Treated plants had smell of respective extract at least for forty eight hours. But it is observed that goats (in group also) do not hesitate in browsing treated plants even immediately after spraying.

In all probability the rejection of specific plant is not determined only by smell. It could be combined effect of smell and appearance (morphology of plant)

#### EFFECT OF URINE ON PALATIBILITY OF FOLIAGE :

The urine of a goat has strong odour. The diluted solution of the urine can be used as a goat repellent to protect plants. In our trials we used 50% diluted urine as a repellent on variety of plants like Mango, Guava, Neem and many other avenue trees (saplings).

The concentration can be optimized for different tree saplings by simple trials. However urine in pure form is hazardous to saplings. It burns the leaves and they become nongreen. The goat urine repels all the herbivore from the seedlings. The effect of one spray lasts for couple of days or more.

In mild doses urine can work even as a rich source of macro and micronutrients. Even there is possibility of urine suppressing pests menace (The urine of cow has pesticidal properties and it has been successfully tried). But to establish the validity scientifically systematic study is required.

NATURAL HERBAL PESTICIDES :

The extracts of Ipomoea fistulosa (Deshrum) and Datura stramonium (Datura) have pesticidal properties. Spraying of diluted extract (100 ml in 15 litre water) on the cotton (Gossypium herbacium) markedly reduced the occurrence of common pests like Helicoverpa larvae, Lepidopterus larvae, white fly etc. In a field of two hectares, about 80% reduction in the count of Helicoverpa larvae was achieved within a period of one week. The number of larvae came down from 25 to 30 per plant to about 2 to 3 per plant. The reduction in the count is comparable to any other synthetic pesticides like endosulphon or pyrethroid preparations. The effect of natural extracts on friendly files is however not known.

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