



INDIGENOUS TRADITIONAL KNOWLEDGE (ITK) FROM THE FARMERS OF GONDIA DISTRICT REGARDING USE OF PLANTS AGAINST STORED GRAIN PESTS.

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ABSTRACT:

In the present study, one of the highly polluted areas was Nagpur city, the segment of road between Ravinagar and Futala was selected. This area consists of three signal and seven cross roads. Being National highway maximum vehicles pass through this road. In this area many plants are grown for beauty and many avenue trees are planted on road sides. Twenty plant species were selected for present study. Out of 20 plants 3 species are herbs, two species are tree species and 15 are shrubs. In the present study only chlorophyll content was calculated as a physiological parameter. The present study clearly establishes that the reduction in the level of pigment due to air pollution except the *Leucaenalati siliqua*, *Duranta erecta*, *Annona squamosa*, *Hibiscus rosa-sines* is the content of pigment was same in the *Psidium guajava* and *Nerium*. Therefore, plant quickly responds to air pollutants and this is brought out by the modification of various fruits in them. Hence they can be utilized as biological indicators of air pollution. The present study on clearly establishes that the experimental sites chosen in this study is highly polluted.

Key words: - Vehicals, Chlorophyll pigments, road site pollution, ravinagar, futala.

INTRODUCTION:

Botanical insecticides have long been touted as to synthetic chemical insecticides for pest management. Chemicals being harmful to the environment, human beings and animals have created many complex environmental problems. Due to tremendous environmental hazards and residual effects of chemicals, an urgent need of searching alternative in plant and plant products has been emphasized. The scientific literature documenting bioactivity of different plant parts and their derivatives are in ample, yet only a handful of botanicals are currently used as grain protectants. Ethano-botanical knowledge of local communities helps to explore new horizons which can be useful for the coming generations to be benefitted. Hence, the present study was carried out with an objective to document the common botanicals used by farmers of Gondia district as grain protectants.

MATERIAL AND METHODS:-

The present study was conducted throughout the year in and around Gondia City of Maharashtra State of India. Information about the prevalent stored product pest management strategies was collected from farmers through direct interviews and questionnaire methods.

RESULT AND DISCUSSION

Since ancient times, a lot of efforts have been made to protect harvest production against the pests. In many parts of world, locally available plants are currently in use to protect stored products against damage caused by insect infestation (Hassanalli and Lwande, 1989; Tripathi *et al.*, 2009; Khater, 2012). Numerous studies have documented the use of indigenous local herbs and plant materials used worldwide (Cox *et al.*, 1998; Rauha *et al.*, 2000; Ahmad *et al.*, 2001; Penna *et al.*, 2001). Many of these plants are widely used by local communities in traditional medicine for the treatment of several ailments. Leaves, twigs and flowers have been

admixed as protectant in different parts of world, particularly India, China and Africa (Golob *et al.*, 1999). The practical advantage of using locally available material to protect stored products destined for household and small scale use remains compelling (Weaver and Subramanyam, 2000). The advantages of insecticide admixture treatments are that they are generally easy to prepare, inexpensive and a single application is effective, correctly formulated, give control of existing insect infestation.

Over 450 botanical derivatives are used in traditional agricultural systems in India. The effectiveness of many local plant derivatives against insect pests have been reviewed earlier (Jacobson, 1958, 1975, 1990). The insect repellent and antifeedant properties of Nishinda (*Vitex negundo*), Biskatali (*Polygonum serrulatum*), Tobacco (*Nicotiana tobaccum*), Neem (*Azadirachta indica*), Turmeric (*Curcuma longa*), Castor (*Ricinus communis*), Royna (*Aphanamix polystachya*) have been reported against stored product pests viz. *Tribolium castaneum* (Jilani and Malik, 1973; Qadri, 1973; Jilani *et al.*, 1988; Parveen and Mondal, 1992). , *Rhizopertha dominica* (Pereira and Wohlgemuth, 1982), *Sitophilus oryzae* (Khanam *et al.*, 1991) and *Sitotroga cerealella* (Abraham *et al.*, 1973). Subsequently a number of workers have also done work with the repellency test of neem seed kernel and extracts of neem against different insect pests (Nakanishi, 1975; Radwanski, 1977a; Jacobson *et al.*, 1978).

Present studies show that the farmers of this region have been using plant and plant products for biological control of stored grain pests. The plants used belong to 21 families and 24 genera. (Table). Different plants used as grain protectants in Gondia district are enlisted as under.

Most of the plants used as grain protectants have been found to have medicinal properties. The rhizomes of sweet flag (*Acorus calamus*) are used for numerous medicinal purposes. The

herb is used both internally as well as externally. In rheumatism, rheumatic fever and in inflamed joints, the paste applied externally alleviates the pain and swelling. Internally sweet flag is valuable in a vast range of diseases. It is effective for digestive ailments such as flatulence, loss of appetite, abdominal dull pain and worms. The powder of sweet flag given with lukewarm salt-water, induces vomiting and relieves phlegm, while easing coughs and asthma. In epilepsy, the powders of sweet flag, Brahmi and jatamamsi work well, when given with honey. The popular Ayurvedic formulation Sarasvata Choorna, which contains sweet flag, is commonly used to treat epilepsy, hysteria and as a brain tonic. Granule Asabi (Unani preparation) is an excellent nervine tonic which improves memory, reception as well as the speech. As it stimulates the uterine contractions, so it is used to augment the labour pains. It is also salutary in dysmenorrhoeal. (Chaturvedi, A. and Diwanji, B.B. 1995)

The leaves of *Annona reticulate*, *Arachis hypoglea* and *Azadirachta indica* is used for the treatment of high blood pressure, fever, stomach upset and Malaria respectively. *Moringa oleifera* Leaves are used for the treatment of Asthma, arthritis, rheumatism, and Ulcer, *Cymbopogon citrus* Lemon Grass Leaves are Antipyretic and used for cold, stomach ache. (Akande ,2018). Int. J. Innovative Biosciences Res. 6 (1):20-27, 2018.

The essential oil of the leaves called tejpatt oil is medicinally used as carminative, anti-flatulent, diuretic, and in cardiac disorders. It is also used in pharmaceutical preparations because of its hypoglycemic, stimulant and carminative properties. Owing to its high medicinal value and being an important ingredient of the spices, (Sharma & Nautiyal, 2011).

Curcuma longa has been commonly used as a traditional remedy for a variety of symptoms such as inflammation, [gastritis](#) and gastric

ulcer. One study showed that an ethanol extract from *C. longa* specifically inhibits [gastric acid](#) secretion by blocking H(2) histamine receptors in a competitive manner (Kim 2005).

Linum usitatissimum, commonly known as Flaxseed has traditionally been used for the management of diarrhea and gastrointestinal infections. Pharmacological basis for the medicinal use of *Linum usitatissimum* (Flaxseed) in infectious and non-infectious diarrhea. (Palla *et al.*, 2015).

CONCLUSION:

Storage of grains and seeds without pest infestation is essential. Since the plants found in this study are medicinal, they are quite safe for human consumption and thus can be included in stored grain pest control strategy. However, further work aimed at isolation of the specific compounds acting against the insects and nature of the effects of the compounds at the cellular level is recommended.

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