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## Paediria foetida-a miracle plant for safe storage of pea seeds under Manipur condition

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### Abstract

Storage of pea seeds is one of the important tasks for the farmers with low cost and environmentally friendly now-a-days. So, an experiment was conducted in the experimental laboratory of Agronomy Department, College of Agriculture, Iroisemba, Central Agricultural University, Imphal in 2017-2019, to study the "Effect of *Paediria foetida* on controlling insect pests on storage of pea seeds (*Pisum sativum* var Makhyatmubi) under Manipur condition". It was found that when we mixed the *P. foetida* with pea seeds and stored in the ratio, pea seeds: *P. foetida*, 1Kg:150g and above, there were no damage of the pea seeds by insect pests but in control where there was no *P. foetida*, all the seeds were damaged by insect pests.

**Keywords:** Pea seeds, *Paediria foetida*, storage

### Introduction

Proper storage of pea facilitates the farmers to overcome the shortage in lean season and serves as a mean of ensuring crop in the subsequent season. It is also utilized by farmers as a profit maximization mechanism by avoiding distress sale at the time of harvest (Singh and Devi, 2020) [4]. In India, about 70% of farm produce is stored by farmers for their own consumption using different types of storage structures made from locally available materials (Shukla and Pati, 1998) [3]. Farmers have been evolving number of traditional practices, to avoid huge losses that are occurring in stored pulse grains due to insect and pest infestation (Pushpamma and Rao, 1980) [1]. In Manipur, majority of the farmers are small and marginal where pea growers are unable to store their produce seeds and are forced to sell their seeds at lower price. Many of the seeds kept for sowing for the next season are also infested and hence, cannot be used for sowing thereafter. Local cultivars of pea e.g. Makhayat mubi, Ningtekpi, Makuchabi, etc. their seeds cost 350-400/Kg. So, many farmers cannot effort to buy for cultivation. The insect pests directly feed on the stored grains, if we do not use any synthetic or organic pesticides. Now-a-days, with the popularization of organic farming in the state of Manipur, the farmers are willing to explore and adopt more organic solutions in their fields.

Considering the above problem of storage an experiment was conducted at College of Agriculture, Iroisemba, Central Agricultural University, Imphal from the year 2017 to 2019 to bring about a suitable storage method to minimized the storage losses in pea with the help of *Paediria foetida*.

### Methodology

Pea seeds were collected from the farmer's field and cleaned properly. The seeds were spread thinly on a concrete floor under the sun for 5 days. It was then cooled and stored in polythene bags. *Paediria foetida*, aerial portions were collected from the forest and dried in the shade. After drying, they were chopped into small pieces. The pea seeds were then mixed well with the *Paediria foetida* at different proportions as: T<sub>1</sub>(1Kg pea seeds, control without *Paediria foetida*), T<sub>2</sub>(1Kg pea seeds+150g *Paediria foetida*), T<sub>3</sub>(1Kg pea seeds+200g *Paediria foetida*), T<sub>4</sub>(1Kg pea seeds+250g *Paediria foetida*), T<sub>5</sub>(1Kg pea seeds+300g *Paediria foetida*), T<sub>6</sub>(1Kg pea seeds + 350g *Paediria foetida*) and T<sub>7</sub>(1Kg pea seeds + 350g *Paediria foetida*) and then stored with the ends of bags tied. Each treatment consists of four replications. The upper most

layer of each treatments was covered with a layer of *Paediria foetida*, and were placed on a desk in the laboratory for a year. The stored seeds were monitored and damage percentage were recorded for each consecutive year i.e., from 2017 to 2019.

### Results and Discussion

It was observed that there were no damage of pea seeds by insect pests in all the treatments except the control (Table no.

1). It may be due to that the bruised aerial parts of *Paediria foetida* have the fetid odour of indole(methyl-mercaptan) that is why the fetid odour of *Paediria foetida* repels the storage insect pests. Similar result was also obtained by Uma Sah *et.al.*, (2004) that while storing field pea in gunny bags, onions were mixed randomly @ one kilogram per quintal of field pea for preventing damage by storage pest. Farmers perceived that the smell of onions repel the storage pest, thus

**Table 1:** Effect of *Paediria foetida* on 1-year storage of pea (2017-2019)

Treatments	Damaged percentage (%)		
	2017	2018	2019
T <sub>1</sub> : 1Kg pea seeds (without <i>Paediria foetida</i> )	100	100	100
T <sub>2</sub> : 1Kg pea seeds+150g <i>Paediria foetida</i>	0	0	0
T <sub>3</sub> : 1Kg pea seeds+200g <i>Paediria foetida</i>	0	0	0
T <sub>4</sub> : 1Kg pea seeds+250g <i>Paediria foetida</i>	0	0	0
T <sub>5</sub> : 1Kg pea seeds+300g <i>Paediria foetida</i>	0	0	0
T <sub>6</sub> : 1Kg pea seeds+350g <i>Paediria foetida</i>	0	0	0
T <sub>7</sub> : 1Kg pea seeds+400g <i>Paediria foetida</i>	0	0	0

minimizes the storage losses. In the same way prior to storage of chickpea seeds, *Asafoetida* was found mixed with water and sprinkled and mixed thoroughly on the grains by farmers. The practice was followed with a rationale that the smell of *Asafoetida* repels the storage pest and the damage by storage pest is minimized. In the control treatment, where there was no *Paediria foetida*, the seeds were all damaged.

### Conclusion

Pea seeds could be stored with *Paediria foetida* in order to safe from the insect pests damage. It would support the economy of small and marginal farmers and would be good for environment and human health.

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