

## **NATIONAL FAIR WINNER, BEST INDIVIDUAL PROJECT – DELHI NATIONAL FAIR**

### **Cow dung: The Legacy Of An Ancient Pesticide, Discovered**

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From ancient times, the ritual of smearing walls and court-yards of Indian homes with cow-dung slurry led me to investigate its pesticidal properties. On studying, I found it was also used for storage and preservation of grains.

I therefore hypothesized that cow-dung may possess pesticidal potential.

Thereafter a controlled experiment was carried out in a PI laboratory. The petriplates were subjected to *Xanthomonas campestris* inoculums in walkimoto medium and challenged with 10% fresh-centrifuged cow-dung solution. These plates were incubated at 35 C to 40 C and colony-formation was observed after eight hours.

The bacterial colony inhibition observed was in 87.50% cases, of which 25% showed 50% and 33.5% showed 100% inhibition. Plaque formation was observed wherever colonies were inhibited thereby indicating presence of bacteriophages. A pH meter-reading of 6.98 and 7.01 indicated cow-dung as neutral to alkaline. A paper chromatography of 30% cow-dung solution showed three distinct rings.

A gel electrophoresis experiment was conducted to check separation and identification of bacterial and bacteriophage DNA segments. Results indicated need to carry out poly-chain reactions' experiments for final analysis.

Field trial using eight treatments with four replicates of cow-dung solution and few anti-biotics of different concentrations alongwith the required controls was done to check whether the *Xanthomonas* leaf blight of paddy could be controlled effectively? Disease reaction was scored by the standard evaluation system for rice.

I have reasons to believe that cow-dung may possess bacteriophages that attribute to its anti-bacterial properties, which may be effective and eco-friendly in controlling bacterial leaf blight of paddy.