# EVALUATION OF DIFFERENT SEED TREATMENT METHODS FOR CHILLI (*Capsicum annuum* L.)



**BY**

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# ABSTRACT

Seed borne pathogens can cause ample damages to seeds and seedlings of chilli. The present investigation was undertaken at the Eastern University (EUSL), Sri Lanka to evaluate different seed treatment methods for chilli (*Capsicum annuum* L.). Chilli seeds of variety PC-1 were collected from the EUSL farm. This study consisted of 4 types of experiments. Among them up to third experiment, they were conducted under *in vitro* condition and fourth experiment was conducted under *in vivo* condition. All the four experiments were laid out in the Completely Randomized Design (CRD). The first two experiments were carried out in order to obtain the best Clorox solution with the combination of concentration and soaking time period with the twelve different treatments with three replications and best Bougainvillea leaf extract with the combination of concentration and soaking time duration with the eight different treatments with three replications.

The potential of the treatments were evaluated. Clorox (5% concentration with 40 minutes soaking time duration), Bougainvillea leaf extract (20% concentration with one hour soaking time duration), Captan (4g / kg) and water (overnight) for the seed treatment of variety PC-1. Then the seeds were treated in each treatment. Each treatment had five replications. The treated seeds were placed on moistened sterilized filter paper. Data were recorded on germination percentage, number of days taken to germinate 50% of seeds. Among the seed treatment agents which were used in present study found to be Clorox and Captan effective in germination percentage. The highest germination percentage was achieved in Captan and the lowest germination percentage was obtained in water. The same result was obtained in number of days taken to

germinate 50% of seeds. In compared captan with water germination percentage was increased in seeds which were treated by captan by 58.10% over the water.

In calculation of Colony Forming Unit (CFU), it was consisted with five replications. Lowest CFU value was obtained by seed suspension which was treated by Captan. Then it was followed by Clorox. Highest CFU value was gained by water. After the 12 days of incubation, inoculated the fungi with conidia to a new petridish from the petridish which were used in CFU calculation. *Aspergillus flavus and Rhizopus* sp. were found to be associate with tested chilli seeds sample.

In the fourth experiment it was conducted as field experiment under *in vivo* condition and measured the disease incident percentage, leaf area, seedling length and seedling vigour index. In the field experiment, seedling characters such as seedling length and leaf area were significantly influenced by Captan treatment. Seedling vigour index and Disease incidence percentage were significantly influenced by Clorox and Captan.

Captan increased the seedling length (67.5%), leaf area (98%), seedling vigour index (71.8%) over the water. Clorox increased seedling length by (32%), leaf area (96%), seedling vigour index (64.9%) over the water. Bougainvillea leaf extract increased seedling length (40.2%), leaf area (95.3%) and seedling vigour index (37.5%) over the water.

Captan, Clorox and Bougainvillea leaf extract reduced the diseases incidence percentage by 54.13%, 45.83 and 4.16% respectively over the water. This could be due to antimicrobial properties of Captan, Clorox and Bougainvillea leaf extract.

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