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# INFLUENCE OF VERMIWASH ON GERMINATION AND GROWTH OF RICE (*ORYZA SATIVA*) VARIETY BHOGAVATI

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## Abstract:

Vermiwash is becoming popular as alternative to conventional agricultural practices in favor of nutrient supply and pesticide properties. Vermiwash is a rich source of vitamins, hormones, enzymes, macronutrients and micronutrients when applied to plants helps in efficient growth. Vermiwash is the wash of earthworms celomic fluid and the watery extract of the bedding materials. The present study deals with the influence of vermiwash on germination and growth of rice var. bhogavati for a period of 140-160 days. Three different concentrations of vermiwash such as 1%, 5%, and 10% were prepared for experiment. The parameters like germination percentage, average height, length of inflorescence and no. of seeds per inflorescence. Growth parameters were higher in 5% and 10% of vermiwash sprayed.

**Key words:** Vermiwash, Germination, Growth, Rice

## Introduction :

Vermiwash, the extracted body fluid of earthworms is also nutrient rich with components promoting good plant growth [1]. Vermitech methods are becoming popular in modern farms as alternative to conventional agricultural practices in favor of nutrient supply and pesticide properties. Vermi technology is a technology, which uses surface and sub surface local earthworm species in composting and soil management. Vermiwash is a widely used application of vermin technology where the wash of the earthworms celomic fluid and the watery extract of the bedding materials are collected. Vermiwash is a liquid collected after the passage of water through a column of vermibed. This vermiwash is very useful as a foliar spray to enhance the plant growth yield and to check development of disease. It contains significant amount of soluble macro and micronutrients, natural growth hormones, beneficial microbes, vitamins, amino acids [2] and nematicidal properties [5]. Vermiwash is very good liquid manure and affect significantly on the growth and productivity of crop during foliar spray [6].

Vermiwash stimulates the growth and yields of crops and even develops resistance in crops. Vermiwash consist of nitrogen in the form of mucus, nitrogenous excretory substances growth stimulating hormones and enzyme [7]. It significantly influences the soil microbial biomass and has proved to be a better alternative source to Albert's solution for lettuce growth under hydroponic culture [8]. Vermiwash spray has significantly enhanced the growth and yield parameter and also flowering and fruiting ratio was increased. It has reported that vermiwash as foliar spray was effective in increasing the growth and yield response of *Anthurium* [3]. It has observed the application of vermiwash enhanced plant height, no. of leaves, spike length and no. of florets in *Gladiolus* [4].

## Materials and Methods:

**Chemicals :-** Vermiwash, 0.1% HgCl<sub>2</sub> solution.

**Plant materials :-** Rice (*Oryza sativa* L.) variety- Bhogavati.

**1) Preparation of Vermiwash concentration:**

Fresh vermiwash was taken and prepare the different concentration like control, 1%, 5% and 10%. The concentration was prepared with the help of distilled water. The prepared concentration of vermiwash were stored and used for treating the seeds of rice.

2) Pot culture experiment was followed for germination studies. Seed were purchased from farmer and were used to determine the growth of in relation to different concentrations of vermiwash. Growth parameters like germination (%), average height, length of inflorescence and no. of. seeds per inflorescence of *Oryza sativa* (Rice) L. Seeds were sterilized with 0.1% HgCl<sub>2</sub> and washed with distilled water for several times and then 50 seeds are kept for germination in pots. A control was maintained with distilled water. Seedlings performance was observed day by day up to harvesting stage.

**Results and Discussion:**

**Table 1: Effect of different concentrations of a vermiwash spray on germination, average height, length of inflorescence , number of seeds per inflorescence of *Oryza sativa* (Rice) L. variety Bhogavati .**

Parameters	Control	1%	5%	10%
Germination (%)	90	90	70	100
Average height of Plant (cm)	58	60	56	52
Average length of Inflorescence (cm)	8	12	15	10
Average no. of seeds per Inflorescence	12	14	16	21

The effect of different concentrations of vermiwash spray on germination, average height, length of inflorescence, number of seeds per inflorescence of *Oryza sativa* (Rice) L. variety Bhogavati were presented in table no. 1. In the present study the germination percentage was more in control, 1% and 10% respectively. The average height of plant was more in 1% and control. The average length of inflorescence was 10, 12 and 15 for 10%, 1% and 5% of vermiwash respectively. The no. of seeds per inflorescence increased than the control.

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**References:**

1. Gorakh N, Keshav S, Singh DK. (2009) ,Aus. J. Bas & Appl. Sci. , 3(4) P.3672-3676.
2. Ismail S. A. (1997), Vermicology : The biology of earthworms. Orent Longman. India.P, 10-45
3. Kale R. D. ( 1998) , CRS Press LLC. BOCCA. Raton, Florida. P. 355-376.
4. Kumar P, Shekhar C, Basoli M, Kumar V.(2013), Annals of Horticulture., 6(1), P.71-75.
5. Mohotti, K. M. Herath, C. N. Weerasinghe, K. W. L. K. and Navarathne, N. (2004), Tea research Institute of Sri Lanka, Talawakelle , Sri Lanka.
6. Subasashri M. (2003), The Hindu, 17:1-2.
7. Tripathi G. and Bharadwaj P.(2004), Biores. Technol, P. 92:275-278.
8. Weerasinghe, K. N. L. K., Mohotti, K.M., Herath, C.N. & Samarajeewa, (2005) Dept. of forestry and Environmental science, University of Sri Jayawardanapura, Sri Lanka. Pp. 70-71