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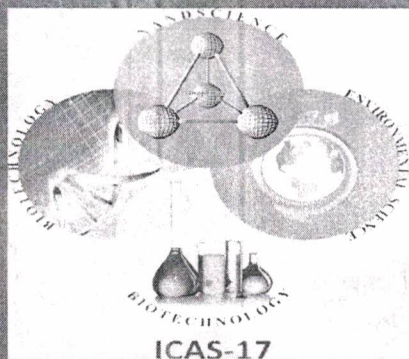
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# International Conference on Applied Science (ICAS-17)

(26<sup>th</sup>- 27<sup>th</sup> December, 2017)



Shri Mahantswami Sikshan Prasarak  
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## 1 Preface

This volume contains all papers presented at **ICAS-17: International Conference on Applied Science** held on December 26-27, 2017 at Kumarswami College, Ausa, Distt. Latur.

International Conference on **Applied Science (ICAS-17)**, is being organized by Shri Kumarswami Mahavidyalaya, Ausa, Dist. Latur, MS, India. The theme of the conference is an innovative approach of Science, which provides a valuable opportunity for all over world developers, researchers to engage in scientific discussion about the current research and latest advancement that help the world going forward. Applied science is a discipline of science that applies existing scientific knowledge to develop more practical applications, like technology or inventions.

The objective of **ICAS-17** is to provide an opportunity to discuss on advances in Science and technology in the fields of **Physics, Chemistry, Biology, Computer Science & Mathematics**. The conference is aimed to provide an opportunity for exchange of ideas and dissemination of knowledge among Academia, Industry, Research Scholars, and Scientists for the growth of the society. Researchers are invited by prospective authors from their subject specialization.

Our main objective is to promote scientific and educational activities towards the advancement of common man's life by improving the theory and practice of various disciplines and sectors of Research Challenges in Science Technology. Shri Kumarswami Mahavidyalaya being one of the affiliated colleges of Swami Ramanand Teerth Marathwada University, Nanded, MS, India, organizes conferences, workshop, seminars and/or awareness programs by providing the supports to improve research and development activities.

There were 248 submissions. Each submission was reviewed by 07, and on the average 05, program committee members. The committee decided to accept 193 papers. The program also includes 18 invited talks.

Our affiliated Swami Ramanand Teerth Marathwada University is kind enough to grant for organizing such academically important event for the first time in our college **Shri Kumarswami Mahavidyalaya, Ausa**.

We are thankful to **Mahatma Basweshwar Shikshan Sanstha, Latur**, for their kind support as always.

EasyChair really helped us to publish worldwide and to manage all tedious activities of the conference. **Team ICAS-17** is sincerely thankful to EasyChair.

And lastly, we are thankful to all participants, reviewers, and guests. This would not have been possible without your support.

Wish you a very Happy New Year !!!

December 26, 2017  
LATUR

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## Studies on growth of *Macrophomina Phaseolina* with effect of methanolic bulb extract of *Allium cepa* L.

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### Abstract:

*Macrophomina phaseolina* (Tassi) Goid is a soil borne fungus causes root rot diseases to Sarpagandha (*Rauwolfia serpentina*). The fungus infects the root and lower stem of over 500 plant species and is widely distributed in the United States (Wyllie, 1988). The efficacy of *Allium cepa* L. against *Macrophomina phaseolina* was studied by using Methanol as solvent at different concentrations i.e., 1.00, 2.00, 3.00, 4.00 and 5.00 % for their antifungal efficacy.

**Key words-** *Macrophomina phaseolina*, Sarpagandha, *Allium cepa* L. Methanol, etc

### Materials and Methods:

In order to study of antifungal activity of Onion (*Allium cepa* L.) bulb extract on *Macrophomina phaseolina*. Locally available Onion (*Allium cepa* L.) used i.e., bulbs of Onion (*Allium cepa* L.) was tested by poisoned food technique in vitro as used by Shiva et.al, (2008) and Francis Borgio, et.al, (2008) to know their

inhibitory effect on the growth of *Macrophomina phaseolina*.

### Preparation of Methanolic plant part extracts:

Healthy fresh bulbs was taken, washed thoroughly with fresh water and finally rinsed with sterile distilled water and dried.

Fifty grams bulbs of Onion (*Allium cepa* L.) were cut into small pieces and grinded in a grinder to make fine powder and then extracted in 50 ml Methanol. Extracts thus obtained were filtered through double layered muslin cloth in 150 ml flasks and plugged. The extracts then autoclaved at pressure 15 lbs for 20 minutes. Potato Dextrose Agar (PDA) medium was prepared and sterilized at 15 lbs pressure for 20 minutes. The sterilized extract was considered as standard plant extract and used for the testing their antifungal activity.

The different concentrations were prepared i.e. 1.00, 2.00, 3.00, 4.00, 5.00, 6.00, 7.00, 8.00, 9.00 and 10.00 percent. The 10 ml extracts of different concentrations

were individually added in 10 ml melted, cooled and sterilized PDA at the time of pouring in the petriplates and incubated at room temperature. After solidification a 5 mm disc of actively growing 7 days old pure culture of *Macrophomina phaseolina* was incubated aseptically in the centre of plate. Three repetitions were made for each treatment. Medium without phytoextracts served as control. The fungal growth in diameter were observed and recorded and percent growth inhibition was also calculated as per the procedure given by Syeda Fakehha et.al. (2012).

**Experimental results and discussion:**

*Allium cepa* treatment at 1 % concentration shows 22.76 to 82.75 %, at 2% concentration gives 25.49 to 84.73 %, at 3 % concentration shows 25.65 to 89.95 %, at 4 % concentration gives 27.95 to 90.77 % and at 5 % concentration gives 28.45 to 95.75 % inhibition of the pathogen as mentioned in table 1. The growth with Methanol solvent extract was recorded at 1 to 7 days of incubation. The efficacy of *Allium cepa*, at 5 % concentration gives maximum inhibition of pathogen growth. It was also observed that the increase in the concentration gives maximum inhibition of the growth with increase in incubation period.

**Table -1: Effect of methanolic bulb extract of *Allium cepa* L. on growth of *Macrophomina phaseolina*.**

| Incubation Period (Days) | Control (Methanol) | Percent inhibition |                  |                  |                  |                  |
|--------------------------|--------------------|--------------------|------------------|------------------|------------------|------------------|
|                          |                    | Concentration (%)  |                  |                  |                  |                  |
|                          |                    | 1.00               | 2.00             | 3.00             | 4.00             | 5.00             |
| 1                        | 7.15<br>(4.64)     | 22.76<br>(13.15)   | 25.49<br>(14.76) | 25.65<br>(14.86) | 27.95<br>(16.22) | 28.45<br>(16.52) |
| 2                        | 9.25<br>(5.30)     | 27.37<br>(15.88)   | 36.38<br>(21.33) | 37.45<br>(21.99) | 41.55<br>(24.54) | 42.85<br>(25.36) |
| 3                        | 12.10<br>(6.94)    | 46.56<br>(27.74)   | 48.49<br>(29.00) | 56.65<br>(34.50) | 59.85<br>(36.76) | 62.50<br>(38.93) |
| 4                        | 15.35<br>(8.82)    | 57.86<br>(35.35)   | 58.89<br>(36.07) | 61.25<br>(37.76) | 69.88<br>(44.76) | 75.00<br>(48.58) |
| 5                        | 18.44<br>(10.62)   | 74.44<br>(48.64)   | 76.88<br>(50.24) | 78.38<br>(51.61) | 78.90<br>(52.09) | 80.95<br>(54.04) |
| 6                        | 21.56<br>(12.45)   | 79.88<br>(53.01)   | 79.95<br>(53.74) | 80.85<br>(54.92) | 82.89<br>(57.07) | 87.68<br>(63.27) |
| 7                        | 22.75<br>(13.14)   | 82.75<br>(57.04)   | 84.73<br>(59.46) | 89.95<br>(66.68) | 90.77<br>(65.20) | 95.75<br>(73.22) |
| S.E ±                    | 0.42               | 3.212              | 3.28             | 3.83             | 3.07             | 3.57             |
| C.D at 5%                | 1.30               | 9.88               | 10.10            | 11.80            | 9.45             | 10.99            |

Figures in parenthesis are ARCSIN transformed value.

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