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containing 50 ml tap water and subjected to the following treatments: (i) High relative humidity (94 to 96 %) during day (9.00–20.00 hr) alternating with low RH (63 to 74 %) during night (8 pm to 9 am), (ii) High RH during night alternating with low RH during day, (iii) Continuous high RH, (iv) Continuous low RH. High RH was provided by keeping the inoculated earheads under bell jar lined with moist cottonwool. Two conical flasks containing four earheads were kept under each bell jar (figure 1B). To provide low RH each conical flask with two earheads was covered with pollination bag (figure 1A). Each treatment was replicated thrice with 12 earheads/replication. Proper controls were maintained.

The earheads were examined daily for 8 days for recording incubation period (day taken to develop first symptoms of the disease) and incidence. (No. of infected ears/No. of inoculated ears × 100). During this investigation the maximum and minimum temperatures and RH observed were as follows.

	Average temperature (°C)		
	maximum	minimum	RH range (%)
Inside bell jar	25.0	21.1	94–96
Outside bell jar	24 3	20.0	63–74

DETACHED EARHEAD CULTURE OF PEARL MILLET ERGOT

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THE ergot (*Claviceps fusiformis* Lov) is an important disease of pearl millet (*Pennisetum americanum* (L) Leeke) in Asia[1] and Africa[2]. This note deals with a technique to develop the ergot disease in detached earheads of pearl millet.

Boots of pearl millet hybrid BJ-104 raised under controlled conditions were covered with pollination bags and allowed to develop. When earheads developed up to stigma bifid stage, they were clipped from the plant (in evening) along with flag leaf and stalk of 10 cm length, brought to the laboratory and inoculated. The individual earheads were dipped in conidial suspension (6×10^5 conidia/ml) prepared by suspending fresh honey dew in sterile water. Two inoculated earheads were kept in 150 ml conical flasks

Figure 1. Low RH (A) and high RH (B) treatments of detached earheads of pearl millet for development of ergot.

Table 1 *Development of pearl millet ergot in detached earheads.*

Treatment	Incubation* period (days)	Ergot* incidence (%)
High RH during day alternating with low RH during night	7.26	41.66
High RH during night alternating with low RH during day	5 73	66.66
Continuous high RH	—	0
Continuous low RH	—	0
Control (uninoculated)[a]	—	0

* Mean of three replications; [a] maintained separately with each of the four treatments

It is evident from table 1 that the disease was successfully reproduced in detached earheads. Incubation period was lower and incidence was higher when inoculated earheads were subjected to high RH during night alternating with low RH during day as compared to the reverse treatment. The disease failed to develop in the remaining two treatments. Earheads kept under continuous high RH were covered with growth of some saprophytic fungi while those kept under continuous low RH dried up within 2 to 3 days. The disease did not develop in control earheads.

This is the first report of detached earhead culture of *Claviceps fusiformis*. The technique may help in a better understanding of various factors affecting infection and development of pearl millet ergot.

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MANGIFERIN—A PHENOLIC GROWTH INHIBITOR

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PHENOLIC compounds are important secondary plant metabolites. Substances belonging to various groups of phenolics like simple phenols, phenolic acids, cinnamic acids, coumarins and flavonoids have been shown to act as growth-regulating compounds. The literature concerning this aspect was reviewed by several workers[1-4].

Table 1 *Effect of mangiferin on the growth of L. paucicostata*

Growth criterion	Concentration in ppm 0 0	0.01	0.05	0 1	0.5	1.0
Fresh weight in mg/flask	589	568	501	433	342	257
No of plants/ flask	327	316	271	234	197	143

F and C. D. values of the data (for which the means of 5 replicates are given above) are as follows:

	F	C. D.
Fresh wt	397 18*	19 06
No. of plants	154.06*	16 66

* Value is significant at 1% level of significance.

Xanthones are an important group of phenolics and are structurally related to flavonoids, but are restricted in distribution[4]. Mangiferin (2-C-glucoside of 1, 3, 6, 7-tetrahydroxyxanthone) is a unique xanthone in having a much wider natural occurrence[4]. In the present study the effect of mangiferin on the growth of a duckweed *Lemna paucicostata* Hegelm, was investigated.

L. paucicostata stock cultures maintained on modified Bonner and Devirian medium[5] were used for the present investigation. The medium (100 ml without sucrose) was poured into 250 ml Erlenmeyer flasks and autoclaved. Mangiferin was dissolved in a small quantity of ehtyl alcohol and was added to flasks to obtain concentrations of 0.01, 0.05, 0.1, 0.5 and 1.0 ppm (care was taken to equalize the amount of alcohol to 0.02 ml for all treatments including the control). Ten *Lemna* plants were introduced into each flask. Cultures were maintained at a light intensity of 5000 lux and 25 ± 1°C temperature. Growth was estimated at the end of 10 days in terms of fresh weight and number of plants.

Mangiferin markedly inhibited the growth of *Lemna* (table 1). With the increase in the concentration, the inhibition was more pronounced. The present study adds mangiferin, a xanthone, to the list of phenolic growth inhibitors.

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