

## Effect of Temperature on Sporulation of *Nomuraea rileyi*

**Key words :** *Nomuraea rileyi*, Sporulation, SMAY Media, Temperature

*Nomuraea rileyi*, deuteromycetes fungus has the ability to cause spectacular epizootics under congenial environmental conditions. In India, natural occurrence of *N. rileyi* as epizootics was reported for the first time by Singh and Gangrade (1975). Optimum temperature for sporulation of *N. rileyi* was 25°C (Ignoffo *et al.*, 1976). Therefore, this study was carried out with *N. rileyi* at four different temperatures in order to identify the critical temperature for sporulation of *N. rileyi*.

One hundred millilitre of Saborauds Maltose Agar with Yeast (SMAY) medium present in conical flask was melted and before solidification, was poured into five petriplates (20 ml/ plate) under aseptic conditions in laminar air flow. After solidification, the petriplates were inoculated with 1 ml of  $1 \times 10^7$  spores ml<sup>-1</sup> concentration of *N. rileyi* suspension. The inoculated petriplates were incubated at different temperatures of 20°C, 25°C, 30°C and 35°C by maintaining five replications for each treatment. The spores were harvested after 10 days of inoculation in 100 ml of distilled water containing 0.05 per cent tween 20 with the help of a fine brush. The suspension was filtered through double layered muslin cloth. The spore count was taken with the help of Neubaur haemocytometer under a compound microscope and spore count ml<sup>-1</sup> was calculated by using the formula.

Spore count ml<sup>-1</sup> =  $X \times 400 \times 10 \times 1000$   
 $X$  = Average number of spores / small square  
 400 = Number of small squares  
 10 = Depth factor (mm)  
 1000 = Conversion factor for mm<sup>3</sup> to cm<sup>3</sup>.

The sporulation of *N. rileyi* obtained at different temperatures is represented below. The highest sporulation of  $0.7 \times 10^8$  spores ml<sup>-1</sup> was recorded at 25°C.

Temperature (°C)	*Spores ml <sup>-1</sup>
20°C	$0.4 \times 10^8$
25°C	$0.7 \times 10^8$
30°C	$0.5 \times 10^8$
35°C	$0.8 \times 10^7$
SEm±	0.02
CD at 5%	0.04

\* Mean of five replications

The sporulation observed at 35°C was the lowest ( $0.8 \times 10^7$  spores ml<sup>-1</sup>). At 20°C and 30°C also the sporulation ( $3.6 \times 10^7$  and  $0.5 \times 10^8$  spores ml<sup>-1</sup>, respectively) was lower than at 25°C. Ignoffo *et al.* (1976) stated that *N. rileyi* will not grow at <15°C and not sporulated at >30°C. Storage temperatures of >30°C reduce the conidial viability of *N. rileyi* (Ignoffo *et al.*, 1985). Mohammed *et al.* (1977) reported greatest mortality of *H. zea* due to *N. rileyi* at 20 and 25°C than at 15 and 30°C. Maniania and Fargues (1992) reported that temperature played a major role on susceptibility of *S. litura* to *N. rileyi* and it increased at 25 - 28°C and decreased at temperatures above 30°C. Vimaladevi and Prasad (1996) observed complete sporulation of *N. rileyi* on mycosed larvae of *S. litrua* at 25°C. Vimaladevi *et al.* (1996) recorded epizootics of *N. rileyi* which were facilitated by favourable environmental conditions i.e. temperature ranging 21-28°C and relative humidity of 68-93 per cent.

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