Optimization of media and temperature for antimicrobial activity of Enterobacter sp. associated with entomopathogenic nematode Rhabditid sp.

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ABSTRACT: An entomopathogenic bacterium isolated from the nematode, Rhabditis (Oscheius) sp. was found to produce secondary metabolites with antimicrobial activity. The bacterium isolated from the entomopathogenic nematode was identified as Enterobacter sp. by using biochemical and 16S rDNA sequence analysis. Media for the production of the bioactive metabolites were standardized with six carbon sources viz. glycerol, maltose, fructose, glucose, sucrose and lactose, and four nitrogen sources viz. tryptone, yeast extract, beef extract and peptone. Antimicrobial activity was found highest for culture filtrate solvent extract (CFSE) obtained from tryptone plus glycerol (T+G) combination. Addition of peptone to the media, irrespective of carbon sources, had the least antimicrobial activity. Fermentation with tryptone plus glycerol medium when carried out at temperature ranging from 25 to 40 ºC, the highest antimicrobial activity was observed at 37 ºC.

KEYWORDS: Rhabditis (Oscheius) sp., antimicrobial, entomopathogenic bacteria, Enterobacter sp.,

INTRODUCTION

The bacteria Xenorhabdus and Photorhabdus are symbiotically associated with nematodes belonging to the families Steinernematidae and Heterorhabditidae, respectively Poinar (1990). Virulence of entomopathogenic nematodes (EPN) to insects is attributed due to its symbiotic bacteria associated with EPN Babic et al., (2000). The importance of entomopathogenic bacteria (EPB) as a source of antibacterial and antifungal molecules has been studied in detail (Webster et al., 2002; Bode et al., 2009).

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