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Screening of blue crab (*Portunus pelagicus* L.) eyestalk extracts for growth inhibition of *Pectobacterium carotovorum* subsp. *carotovorum* (Hauber *et al*. 1998) (*Erwinia carotovora)* Jones (Holland) and *Ralstonia solanacearum* (Yabuuchi *et al*. 1995) (*Pseudomonas solanacearum*) E. F. Smith

Julissah C. Evangelio and Bernardita P. Germano

Institute of Tropical Ecology-Marine Laboratory and Department of Biological Sciences, Leyte State University, Baybay, Leyte, Philippines

ABSTRACT

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Crustacean eyestalks are known to contain neurosecretory hormones that inhibit molting, growth and gonadal development. Along this framework, this study was conducted to: screen crude eyestalk extracts from the blue crab *Portunus pelagicus* for possible growth inhibition on two bacterial pathogens *Ralstonia solanacearum* and *Pectobacterium carotovorum* subsp. *carotovorum*, and determine effective concentrations of the crude extract against the pathogens. The screening was done through bioassay using the top agar inoculation technique with 70% ethanol as the extracting solvent and streptomycin as the positive control. Different concentrations of blue crab extract and streptomycin were obtained using serial dilution.

Results showed inhibitory effects of the blue crab eyestalk extracts against the two pathogens *R. solanacearum* and *P. carotovorum* at bacterial populations ranging from 4.63×10^6 - 5.70×10^6 for the former and 5.20×10^6 - 5.95×10^6 for the latter. However, inhibitory effects of the eyestalk extracts were apparently lower than that of streptomycin and seem to be comparable to growth inhibition at lower concentrations of streptomycin. Moreover, the mixed molt and reproductive stages of the eyestalk source crabs may have diluted the concentrations of eyestalk hormones. Among the two pathogens, *P.*

carotovorum appeared more responsive to the different concentrations of eyestalk extracts. It showed greater inhibition by the extract at the maximum concentration of 44.5 mg mL^{-1} and had a lower minimum inhibitory concentration (MIC) of 1.39 mg mL^{-1}.

Results further suggest that blue crab eyestalk extracts can be used as a possible control agent against the growth of bacterial pathogens *P. carotovorum* and *R. solanacearum*. However, further verification of the study should be done to determine eyestalk extract effect at higher pathogen populations.

Keywords: *Portunus pelagicus* eyestalks, growth inhibiting hormone, *Pseudomonas carotovorum* subsp. *carotovorum*, *Ralstonia solanacearum*

Correspondence: J.C. Evangelio Present Address: Institute of Tropical Ecology-Marine Laboratory, Leyte State University, Baybay Leyte, Philippines. Telefax: (053)335-2651 or 2652. E-mail: julhz@yahoo.com