Antibacterial Activity of Methanol Extract of Boal Fish (*Wallago attu*)

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ABSTRACT

In the present study, methanol extract of boal fish (Wallago attu) was tested against four human-pathogenic organisms such as Escherichia coli, Yersinia pestis, Salmonella spp. and Shigella sonnei. Among the four organisms, the highest antimicrobial activity was obtained against Yersinia pestis. Methanol extract of boal fish showed antimicrobial activities against almost all four microorganisms. The MIC values against Escheriachia coli, Yersinia pestis, Salmonella spp. and Shigella sonnei were found to be 16 μgml^{-1}, 8 μgml^{-1}, 64 μgml^{-1} and 16 μgml^{-1}, respectively.

Key words: Wallago attu, Methanol extract, Antibacterial activity.

INTRODUCTION

In spite of modern improvements in chemotherapeutic techniques, infectious diseases are still an increasingly important public health issue (WHO, 2002). It has been estimated that in 2000, at least two million people died from diarrhoeal disease worldwide (WHO, 2002). There is, therefore, still a need for new methods of reducing or eliminating pathogens, possibly in combination with existing methods (Leistner, 1978). Fish by-products are rich in potentially valuable proteins, minerals, enzymes, pigments or flavours (Durand and Lagoin, 1988; Faid et al., 1994, 1997; Cancre et al., 1999; Fouchereau-peron et al., 1999). Use of fish for research on biologically active compounds could be an interesting exercise.

Fish are in an intimate contact with their environment which can contain very high concentrations of bacteria and viruses. Many of these are saprophytic, some are pathogenic and both are capable of digesting and degrading the fish's tissues. However, under normal conditions, the fish can maintain a healthy state by a complex system of innate defense mechanisms. The innate defense mechanisms of fish against infectious bacteria include production of broad-spectrum anti-microbial substances and acute-phase proteins, non-classical complement activation, release of cytokine inflammation and phagocytosis. The nature and mechanisms of many of these defenses are published in many articles (Durand and Lagoin, 1988; Faid et al., 1994, 1997; Cancre et al., 1999; Fouchereau-peron et al., 1999).

The biological interface between fish and their aqueous environment consists of a mucus layer composing of biochemically-diverse secretions from epidermal and epithelial cells (Pickering, 1974; Ellis, 1999). This layer is thought to act as a lubricant (Rosen and Cornford,