

ABSTRACT

The primary interference between fish and its environment is the mucus layer which covers its entire body and is continually produced and sloughed off, preventing the attachment of pathogens and parasites. The mucus layer of fish also has a variety of biologically active substances that may act as defense substances. The antimicrobial peptides exhibit potential therapeutic significance due to their broad-spectrum microbicidal activity against bacteria, fungi, yeast and even some viruses. Present study was carried out to evaluate the therapeutic potential of *Labeo rohita*'s (epidermal) mucosal peptides and their antimicrobial effects against *Sarcinia lutea* (ATCC 9341), *Staphylococcus aureus* (ATCC 25923), *Escherichia coli* (ATCC 25922), *Bacillus subtilis* (ATCC 6633) and *Candida albicans*. The mucus was extracted through two methods; by using an anesthetic agent (100 ml) and by providing alkali stress (350 ml). All mucus samples demonstrated considerable antibacterial activity. The relatively highest antibacterial activity was observed against *Escherichia coli* and *Bacillus subtilis* and the lowest against *Staphylococcus aureus*. The mucus sample extracted via the anesthetic agent was found to exhibit stronger antibacterial activity. In order to firmly establish that the antibacterial activity of *Labeo rohita* mucus is attributed to antimicrobial proteins, tests were carried out to digest proteins in the mucus samples before subjecting them to antimicrobial assay. It was observed that the antibacterial activity progressively decreased with an increase in the concentration of pepsin used to digest the proteins until no antibacterial activity was detected. SDS-PAGE analysis of the pepsin digested mucus samples revealed loss of proteins bands with increasing pepsin concentration in relation with the loss of antibacterial activity.