TITLE: ANTIMICROBIAL ACTIVITY OF HYDROALCOHOLIC EXTRACTS OF WASABI (*Wasabia japonica*) AND GINGER (*Zingiber officinale Roscoe*) AGAINST *Staphylococcus* SP. and *Salmonella* SP.ISOLATED FROM SUSHI

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Abstract:

Foodborne diseases (FBD) are considered a major concern of public health agencies, as they are responsible for a large number of outbreaks, cases and deaths. The antimicrobial activity of naturally occurring substances in roots and herbs has been studied for a long time and several studies have reported the activity of these compounds against pathogenic bacteria transmitted by food. Two condiments widely used in Japanese cuisine, wasabi and ginger have been recognized by having antimicrobial activity against various groups of micro-organisms carried by this type of food. Given the above, the objective of this study was to evaluate the antimicrobial activity through agar diffusion tests and minimum inhibitory concentration, and the effectiveness of wasabi and ginger as natural antimicrobials. For wasabi and ginger extract, thirty grams of wasabi powder and ginger were weighed and dissolved in a hydroalcoholic solution (50%) previously prepared. The antimicrobial activity was determined using the agar diffusion method and the minimum inhibitory concentration (MIC) was evaluated with the use of the extract at concentrations of 1, 2, 5, 10, 15 and 20%. The results of the antimicrobial activity in agar pointed to a higher sensitivity of the diffusion method well relative to the disc diffusion method. The halos formed, in the test using wells, by wasabi extract showed diameters between 12 and 13 mm against *Staphylococcus* sp. and *Salmonella* sp, while disc diffusion test presented diameters of 7mm or absence of the appearance of inhibitory halos. Regarding the tests with ginger extract, the wells did not have any effect, and only some discs showed the effectiveness of the extract against *Staphylococcus* sp. For *Salmonella* sp., the results were satisfactory, showing halos ranging 16-37 mm in Disc diffusion and wells. Given the results, it was concluded that wasabi and ginger extracts shown to have a significant antimicrobial power against micro-organisms isolated from sushi, which can be observed through the characteristic inhibition zones, featuring these condiments as effective natural antimicrobial agents.

Keywords: foodborne diseases, antimicrobial activity, wasabi, ginger.

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