Evalvation of antimicrobial Properties garlic extracts Effect loaded on hydrogel

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Abstract Introduction: Herbal garlic belongs to Allium Sativum, a scientific name of garlic, belonging to the Liliaceae family, which is native to Central Asia. It has been used centuries ago for seasoning and food additive as well as drug in herbal medicine in the treatment of various diseases. Garlic contains sulfur organic compounds that are highly reactive and broad antimicrobial effect on bacteria even at very low concentrations. Allicin or Diallil di-sulfide oxide is the most important Garlic Sulfur compound with antimicrobial activity. In Egypt, garlic is used to treat arteriosclerosis, high pressure, immune system, and to prevent cancer. Method: The antimicrobial property of garlic extract was investigated in the absence of growth Halo test, and bactericidal effects and bacterial inhibition was investigated by MIC and MBC methods. In the GC-MAS test, the components of the extract were determined, then the chitosan-based hydrogel was synthesized. In the following, hydrogel was synthesized on the basis of carboxymethyl cellulose. hydrogel structure was investigated by FT-IR, SEM, TGA. The amount of infusion and release of the extract was measured the hydrogel. Then the garlic extract was loaded onto the hydrogel and its antimicrobial property was investigated. Results: According to the MIC and MBC test, garlic hydroalcoholic extract has high inhibitory effects. In the well test method, the garlic extract of the non-growth halo showed antimicrobial property, anti Staphylococcus aureus and Escherichia coli, but anti-pseudomonas aeruginosa was intact. The antibacterial activity of garlic plant on gram positive bacteria was greater than gram negative. The optimal conditions for the synthesis of hydrogel are chitosan 1 g and the amount of acrylamide 0.1 g and acrylic acid 0.1 g and temperature are 80-60 ° C. Optimal conditions for hydrogel based on carboxymethyl cellulose, 1 g carboxymethyl cellulose and the amount of acrylic acid is 0.5 grams and acrylic acid is 0.5 grams and temperatures are 80-60 degrees centigrade. In the present study, with

increasing loading time, the amount of extraction is loaded in the hydrogel had gradual release and showed the inhibitory effect of growth and death anti Staphylococcus aureus and Escherichia coli, and anti-Sudo monase-erogenous does not show any growth inhibition. Conclusion: The extract of garlic loaded on the hydrogel can be used as a new and effective drug combination in the treatment. Key words: antimicrobial effect, garlic extract, hydrogel, Staphylococcus aureus.

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