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In-vitro Effects of Tribulusterrestris Extracts on S. aureus

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Abstract--- *The current study aimed to assess alcoholic extracts of Tribulusterrestris antibacterial activity on pathogenic S. aureus isolate. An isolate of S. aureus were from a previous study. The ethanolic extract of plant were prepared according to previous studies. This extract was assessed for antibacterial activity by using the diffusion method. The value of inhibition zone diameter for alcoholic extract against S. aureus were 12, 14, 17mm at a concentrations 0.75, 1.5, 3 mg/ml respectively. In conclusion, the 3 mg/ml concentration of extract was more efficient and have an effective antibacterial effect.*

Keywords--- *Tribulusterrestris, S. aureus, Extract.*

I. INTRODUCTION

Tribulusterrestris (TT) is usually well-known as puncture vine or some time cathead due to the sharp spurs that protruding from the capsule fruit is a small flaty early herb bearing yellow flowers on its branches. Currently this drought resistance plant were worldwide distributed in warm areas of Asia, Europe, Africa, America as well as Australia (Kianbakht and Jahaniani., 2003). *T. terrestris* used traditionally for the treating of eye problems, oedema, distention of abdominal and many other problems (Lanet al., 2009 and Yajuan et al., 2010). Recently, antitumor activity and effects on cardiovascular system have been reported (Svetlana et al., 2006).

Recent study working by Venkataswamy et al. (2010) have been showed an antibacterial effects on some positive bacteriadue to their effects of tannins towards many bacteria such as *S.aureus, Strept. pyogene* and others, the decreasing adhesion, enzymes as well as cell envelope transport proteins were the main mechanism of action.There are many articles about the flavonoid structures which have a positive effects against bacteria, viruses as well asfungi (Cushnie and Lamb, 2005).

Saponins are a glycosylated triterpenoid, steroid, which happen constitutively in great numerous species of plants (Rae and sung, 1995). These molecules have an oligosaccharide chain which affect against bacterial pathogens (Husam, 2010).

This study aimed to assess the activity of alcoholic extracts of *Tribulusterrestris* against a pathogenic *S. aureus* isolate.

II. MATERIALS AND METHODS

The pathogenic *S. aureus* isolate were isolated and diagnosed in a previous study (Kareem et al., 2020).

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Alcoholic solvent extraction of the Tribulusterrestris was done by using 70% ethanol that regarded as an effective in extracting the plants, this is done according to the technique mentioned by Montmat et al. (1982).

The stock solution was Prepared by dissolving 10 g of dried extract in 100 ml of distilled water, then it was sterilized by passing the solution through special filters 0.22 mm. The following concentrations (100, 50, 25, 12.5, 6.25, 3, 1.5, 0.75 mg/ml) was prepared in D.W.

Agar – well diffusion method was used according to Baron and fine gold, (1994), by inoculation of nutrient agar or MacConkey agar with (0.1) ml bacterial suspension which was spread by the sterile spreader, wells with diameter (6mm) were made on nutrient agar plate, (0.1) ml of different concentrations(100, 50, 25, 12.5, 6.25, 3, 1.5, 0.75 mg/ml)., were poured in the wells , one well was used as a control and filled with (0.1)ml of sterile distilled water, the plates were then incubated up down at 37C° for (24) hours, the extract activity was evaluated by measuring of inhibited zone of bacterial growth in (mm) around each well.

III. Results and Discussion

Activity of the ethanolic plant extract against *S. aureus* showed a presence of different size of inhibition zone especially at a concentration of 3 mg/ml (Figure 1). They showed a results of 12, 14, 17 mm at a concentrations 0.75, 1.5, 3 mg/ml respectively.

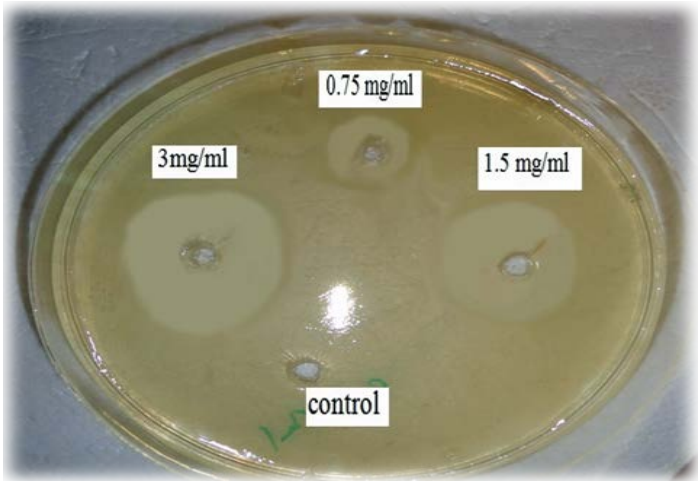

Figure 1: Sensitivity of Staphylococcus Aureus to Ethanolic of Tribulusterrestris Fruit Extracts (mg/ml)

The activity of the plant extract against this bacteria may be attributed to the content of plant (fruits) that have an active metabolites that have antibacterial effect like saponins (Mitraet al., 2012). Saponins reported to be have anextensive biological activities ranges, the Saponinstoxic to insects, antihelmintic activity, and their antifungal, antiviral, and antibacterial activities are well documented (Okigbo et al., 2009). Also, many other researchers have been showed the higher antibacterial activity of T.T against many bacteria (Ammar et al., 2018; Semerdjieva et al., 2019).

IV. Conclusion

At 3 mg/ml concentration of Tribulusterrestris extract was given a good antibacterial effects.

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