Activity of *Thuja occidentalis* and *Lawsonia inermis* extracts against some bacterial isolates from wound of some surgical operations

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Summary

Surgical operation wound swabs were collected from 100 inpatients who underwent various surgical operations at Basrah teaching hospital included between 70 females and 30 males.

Eighty-seven bacterial isolates were optained from the 84% samples that showed bacterial growth of *Staphylococcus aureus* were the most common species isolated from wound swabs (55.2%)followed by *Staphylococcus epidermidis* (27.6%) and *Pseudomonas aeruginosa* (17.2%).

All of clinical bacterial isolates were resistant about 100% to the following antibiotics Penicillin, Ampicillin and Amoxicillin, and showed highest susceptibility to antibiotics Chloramphinicol, Amikacin, and Streptomycin, but they differ in their effect to antibiotics Erythromycin, Tetracyclin, Lincomycin and Rifampicin.

In current study 8 types of plants 3 types of solvents (alcohol, ethylacetate and hexan) were used to make three different types of extracts for each plant, preliminary screening of these plants activity against reference strain showed that the fruit extracts of *Thuja occidentalis* leaf and the extracts of *Lawsonia inermis* gave the highest antibacterial activity.

The results of chemical detection showed that the leaves of *Lawsonia inermis* were contained many medicinal active compounds like Alkaloids, Terpenes, Saponins, Glycosides, Phenols, Tannins, Coumarins, Flavonoids and Resins while the fruit of *Thuja occidentalis* were contained all these compounds except Alkaloids and Saponins, pH

values were 5.93 in the leaves of *L. inermis* and 5.45 in *T. occidentalis* fruits.

The antibacterial activity of three organic solvent extracts with crud extract (organic solvents mixture) of *T. occidentalis* fruit and *L. inermis* leaves against clinical isolates showed that the crud extract of *T. occidentalis* had the highest activity with in this plant extracts while the alcoholic extract of *L. inermis* had the highest activity with in this plant extracts, hexan extracts were the lowest activity in both plants, Gram positive bacteria were more sensitive to all these extracts than Gram negative bacteria.

The phenolic compounds were extracted from both plants and gave a definite activity against both of clinical isolates and reference strains.

Differences were noticed in value of (MIC) minimum inhibitory concentration of phenolic crud extracts of plants against clinical isolates depending on the bacterial species and phenolic extract to each plant, the concentration (10, 20, 30) mg/ml showed activity against *S. aureus* in percentage 31.25% , 52.08% and 16.7% respectively to *T. occidentalis* and 16.7%, 3.33% and 50% respectively to *L. inermis*.

The activity of these extracts against *S. epidermidis* for the concentration (5, 20, 25) mg/ml were 18.5% 37.03% and 44.44% respectively to *T. occidentalis* and the concentration (5, 15, 25) mg/ml were 25.93% , 40.47% and 33.33% respectively to *L. inermis* . while it's activity against the *P. aeruginosa* for concentration (20, 25) mg/ml were 25% and 75% respectively to *T. occidentalis* and 41.7% and 58.7% respectively to *L. inermis*.

The phenolic crud extracts to *T. occidentalis* and *L. inermis* haven't show any cytotoxicity against human erythrocytes.