



DETERMINATION OF ANTIMICROBIAL ACTIVITY OF DRY RASPBERRY LEAVES

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Relevance: The medicinal properties of plants are determined by their active substances, based on which or by synthesizing which the pharmaceutical industry produces effective medicinal herbal preparations. Therefore, the search for alternative medicinal herbal preparations with a wide spectrum of antimicrobial activity is very relevant.

Objectives of the study: To study the antimicrobial activity of a sample of dry raspberry leaves.

Materials and methods: The antimicrobial activity of the sample – dry raspberry leaves – was determined by the agar diffusion method against some types of opportunistic bacteria: *Escherichia coli*, *Pseudomonas aeruginosa*, *Staphylococcus aureus*, *Bacillus subtilis* and the yeast fungus *Candida albicans* (GF XX1, part one, p. 194). All microorganism cultures were obtained from the collection of the Institute of Microbiology of the Academy of Sciences of the Republic of Uzbekistan. The determination was carried out by the agar diffusion method on a dense nutrient medium.

Preparation of inoculum. The grown cultures of test bacterial strains were washed off the surface of the slanted agar with sterile 0.9% isotonic sodium chloride solution, a suspension with a cell count of 107 CFU/ml was prepared using the McFarland turbidity standard. Dry raspberry leaves were prepared in two ways according to the instructions. *Infusion.* 5 tbsp. dry crushed leaves per half a liter of boiling water. Infuse for 2 hours. Then strain.

Tea. 1 tbsp. dried raw material and a teapot (200 ml) with hot water. The tea should be infused under the lid for 15 minutes, then strained.

Conducting experiments. In Petri dishes installed on tables with a strictly horizontal surface, melted nutrient medium was poured in a volume of 25 ml for bacteria nutrient agar (Himedia), for fungi - Sabouraud agar (Himedia). The dishes were dried in a thermostat at 37°C for 24 hours. The bacterial suspension prepared as described above was inoculated onto the agar by dipping a sterile cotton swab into the test microorganism suspension, removing excess suspension by squeezing the swab against the walls of the test tube. To obtain a uniform lawn, the inoculum was applied evenly with stroke movements over the entire surface of the agar. Wells were punched in the agar with a sterile steel cylinder with a diameter of 0.6 cm. 100 µl of the test sample were added to each well. After adding the test samples, the dishes were kept in the refrigerator for 4 hours. Then the dishes were incubated in a thermostat at 37°C for bacteria and at 30°C for fungi for 24 hours. The experiment was carried out twice.

Results: Antimicrobial activity can be of two types: bactericidal and bacteriostatic. Bactericidal activity means that the test sample kills bacteria, while bacteriostatic activity means that the test sample inhibits the growth of bacteria without killing them. It was experimentally established that the infusion of dry raspberry leaves showed moderate bacteriostatic activity against *Staphylococcus aureus*. The diameter of the zone was 16 mm. In the diffusion zone of the infusion of dry raspberry leaves, fewer colonies grew, compared with other areas on the dish, and their sizes were significantly



smaller. Antimicrobial activity against *Escherichia coli*, *Pseudomonas aeruginosa*, *Candida albicans* and *Basillus subtilis* was not demonstrated by dry raspberry leaves in the form of infusion and tea.

Conclusions: According to the results of the studies, dry raspberry leaves in the form of infusion showed moderate bacteriostatic antimicrobial activity against *Staphylococcus aureus*.