DETERMINATION OF ANTIMICROBIAL ACTIVITY OF INFUSION FROM ABOVEGROUND PART OF LOPHANTHUS ANISATUS(Benth).

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Abstract The purpose of this work was to determine the antimicrobial activity of the infusion from the aboveground part of Lophanthus anisatus (bens). Studies have shown that the growth inhibition zone of Candida albicans is 28 mm, E.coli – 22 mm, Bacillus subtilis – 10 mm, St. Epidermidis – 10 mm, St. Aureus – 7 mm. The results obtained showed that the studied infusion from the aboveground part of lophanthus anisatus has pronounced antimicrobial activity against Candida albicans and moderate antibacterial activity against some gram-negative enterobacteria and conditionally pathogenic microorganisms.

Keywords: test culture, inhibition, taxonomy, tinctorial properties.

Introduction. An infusion from the aerial part of lophanthus anisatus (benth) has a tonic, tonic, antiseptic and anti-inflammatory effect. Medicinal herbs containing complexes of antibiotic substances are one of the rich sources of antibiotics for medical practice. The available raw material base and the results of preliminary pharmacological studies, which open up prospects for the use of an infusion from the aerial part of lophanthus anisatus as an effective anti-inflammatory agent, indicate the relevance and expediency of a comprehensive study of this plant.

The purpose of this work was to determine the additional pharmacological efficacy - the antimicrobial activity of the infusion from the aerial part of lophanthus anisatus.

Materials and Methods: The study of the antimicrobial activity of the infusion from the aerial part of lophanthus anisatus was carried out jointly with the staff of the bacteriological laboratory of the Scientific Center for Standardization of Medicines LLC. The studies were carried out in accordance with the requirements of the SP XI issue. Antimicrobial activity was determined by the sensitivity of the test - cultures of microorganisms by diffusion in a dense nutrient medium. 15.0 ml each was poured into Petri dishes placed on tables with a strictly horizontal surface. 3.0% meat-peptone agar (MPA). After the agar solidified, the dishes were dried in a thermostat, then 5 ml of 1.5% MPA mixed with the test culture was poured into each dish. The amount of the latter was taken at the rate of 20 million cells per 1 ml. environment. If the culture is a suspension of vegetative cells, then the temperature of the molten medium into which the test microbe is introduced should be (49 ± 1) C; spores, which ensures optimal growth of the test microbe and the clarity of the zones of inhibition of its growth. [1]

Six sterile cylinders of the same size and mass, height (10.0 ± 0.1) mm and inner diameter (6.0 ± 0.1) mm, made of stainless steel were placed on the surface of the inoculated medium at an equal distance from each other and from the edge cups. Equal volumes of working solutions of the control and test samples were added to the cylinders or wells of each dish. Basic solutions of control and test samples were prepared in sterile solvents at a concentration of 1 mg/ml.[2]

To reduce the effect of fluctuations in time between instillation of the solutions used in the experiment, after their introduction, the dishes were kept at room temperature for 1-2 hours. Petri dishes were placed in a thermostat at 370 C for 18-24 hours. [3] Before use, microbial strains taken from the storage media were subcultured twice on nutrient media appropriate for each taxonomic group of bacteria. [4] Test cultures were identified by cultural, morphological, tinctorial, enzymatic-biochemical and antigenic properties. The main registration and passport data characterizing the properties of test cultures of microorganisms are presented in Table 1.

Table 1

List of strains of microorganisms used to determine antimicrobial activity.

№	Name	Registration room	Morphology, Tinctorial properties	Enzymatic properties	Source allocation	Where did the strain come from
1	St. aureus	ATCC 25923	Gram-positive cocci	typical	museum culture	Collection LLC "Scientific Center for Standardization of Medicinal Products"
2	St. epidermidis	ATCC	Gram-positive cocci	typical	museum	Collection LLC "Scientific Center for Standardization of Medicinal Products"
3	Bacillus subtilis	ATCC 6633	gram-positive rods, streptobacilli, central spores	typical	museum culture	Collection LLC "Scientific Center for Standardization of Medicinal Products"
4	E.coli	ATCC 25922	gram-negative rods	typical	museum culture	Collection LLC "Scientific Center for Standardization of Medicinal Products"
5	C albicans	ATCC 885653	Gram-positive budding drusen	typical	museum culture	Collection LLC "Scientific Center for Standardization of Medicinal Products"

Then the cups were incubated at a temperature of (36±1)°C for 16-18 hours. The diameters of the zones of growth inhibition of the test microbe were measured with the help of appropriate instruments with an accuracy of 0.1 mm. An isotonic sodium chloride solution was used as a control. [5]

Sabouraud's medium was used for Candida albicans, meat-peptone agar for St.aureus and St.epidermidis, etc., Endo's medium for E.coli.

Results and discussion The diameter of the zone of inhibition of bacterial growth by infusion from the aerial part of Lophanthus anisatus is in Table 2.

table 2

Diameter of the bacterial growth inhibition zone, in mm.

	St. aureus (мм.)	St. epidermidis (мм.)	E.coli (мм.)	C albi-cans (мм.)	Bacillus subtilis (мм.)

Infusion from the aerial part of lophanthus anisatus (bens).	7,0	10,0	22,0	28,0	10,0
The control	6,0	6,0	6,0	6,0	6,0

As can be seen from Table 2, an infusion from the aerial part of lophanthus anisatus (bens). has an antimicrobial effect against Candida albicans, moderate antibacterial activity against some gram-negative enterobacteria and opportunistic microorganisms.

Conclusion: On the basis of the data obtained, it can be concluded that the studied infusion from the aerial part of lophanthus anisatus (bens) has a pronounced antimicrobial activity against Candida albicans, moderate antibacterial activity against some gram-negative enterobacteria and conditionally pathogenic microorganisms

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