

The data obtained from studies of the pharmacotechnological properties of the *Rhodiola Rosea* and Quercetin extract powder make it possible to predict the composition and amount of excipients for the development of the drug in the form of chewable tablets.

Investigation the antimicrobial activity of ethanolic extract of green tea leaves against the Gram-positive strains

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Green tea leaves are known to contain various bioactive compounds with potential health benefits, including antibacterial properties. The main components of green tea leaves responsible for this property are catechins, which are powerful antioxidants that can also exhibit antimicrobial activity.

Green tea leaves extract can be used as a natural alternative to synthetic antibiotics. Unlike synthetic antibiotics, which can lead to the development of antibiotic-resistant strains of bacteria, green tea leaves extract does not promote the emergence of resistant strains. Additionally, green tea leaves extract can be used in combination with synthetic antibiotics to enhance their effectiveness and reduce their side effects.

The aim of the study was determined the antibacterial activity of green tea leaves ethanolic liquid extract against the Gram-positive strains.

Green tea leaves of spices Chun My were taken for the study, the raw material was collected in Anhui province (China) from March to May. 10.0 g of the grinded leaves was mixed with 200 mL of 96% ethanol. Extraction was carried out within 1 hour on water bath with a condenser, then repeated two times with a new portion of the solvent. After that the obtained extracts were filtrated and concentrated using rotary evaporator to 20 mL.

The antibacterial activity was determined by the method of wells. Preparation of microorganisms` suspensions with determined concentrations of microorganisms

(optical density) was carried out by the standard of turbidity (0.5 units according to scale of McFarland) with using of equipment of Densi-La-Meter (Czech, wavelength 540nm). Colony forming unit was 10^7 microorganisms at 1 mL of growth medium and determined by standard of McFarland). On solidified agar, using a pipette under sterile conditions in Petri dishes made 1 mL of a suspension of microorganisms. After uniform distribution of microorganisms over the entire surface of the agar, the plates were incubated at room temperature for 15-20 minutes. Next, wells with a diameter of 6 mm were made in the cups, into which solutions of the test substances were introduced. The samples incubated at 37° C for 16-24 hours. After incubation, the plates were placed upside down on a dark matte surface so that light fell on them at an angle of 45° (accounting in reflected light). The diameter of the growth retardation zones measured using a caliper. In the study following museum strains were used *Staphylococcus aureus* 6538 ATCC, *Bacillus subtilis* ATCC 6633. Chlorophyllipt spray manufactured by the State Scientific Center of Drugs (DNCLZ) with concentration 1% in 96% ethanol was used as the reference drug. The analyzed solution was 1% prepared solution of obtained ethanolic extract.

Table 1. Antimicrobial activity of green tea leaves extract and reference drug

Sample	Diameter of the growth retardation zone, mm	
	<i>Staphylococcus aureus</i> 6538 ATCC	<i>Bacillus subtilis</i> ATCC 6633
Ethanolic extract	26.33 ± 0.50	25.67 ± 0.50
Chlorophyllipt	19.33 ± 0.50	19.33 ± 0.50

According to the conducted research, it was found that ethanolic extract strongly inhibited the growth of Gram-positive strains such as *Staphylococcus aureus* (26.33±0.5 mm) and *Bacillus subtilis* (25.67 ± 0.50 mm). Comparing results of investigated extract and reference drug – «Chlorophyllipt» (DNCLZ) it can be pointed out that reference drug inferior of antibacterial activity.

The present work showed that the ethanolic extract of green tea leaves possess remarkable antibacterial activity against Gram-positive strains.