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Alkanna orientalis (L.) Boiss. plant callus cultures as novel source with antibacterial activity

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The ever-increasing demand for herbal medicine requires searching for new sources of biologically active compounds. *Alkanna orientalis* (L.) Boiss. is known as a plant with high biological activity. *A. orientalis* plant callus culture was isolated, antimicrobial activity of its aqueous extracts was studied against a number of Gram-negative (*Escherichia coli*, *Salmonella typhimurium*), Gram-positive (*Bacillus mycoides*, *B. mesentericus*, *B. megaterium*, *B. subtilis*, *Brevibacterium lavum*, *Enterococcus hirae*, *Micrococcus luteus*, *Staphylococcus aureus*, *St. citreus* WT, *St. roseus*, *Lactobacillus acidophilus*, *L. rhamnosus*) bacteria and yeasts (*Debaryomyces hansenii*, *Pichia guilliermondii*) by the method of diffusion in the agar. A Minimal Inhibitory Concentration (MIC) for callus extracts was determined against *E. hirae*. The extracts with different concentrations (500 µg/ml, 250 µg/ml, 125 µg/ml, 62.5 µg/ml, 31.25 µg/ml and 15.625 µg/ml) had been used. As a positive control, shikonin was used with the same concentrations, as those of the extract. According to our studies, callus extracts possessed marked bacteriostatic activity against gram-positive bacteria and bactericidal activity - against lacto acid bacteria. MIC was corresponding to 250 µg/ml dry weight of extract in comparison with purified shikonin, which MIC was 31.25 µg/ml. Hence, *A. orientalis* callus tissue extracts have the rather high antimicrobial activity, which will be useful for development of new medicinal preparations as well as for food industry.

Biography

Sahakyan Naira has completed her PhD from Supreme Certification Commission of the Republic of Armenia (of Ministry of Education and Science of the Republic of Armenia). She is the researcher of Yerevan State University, Armenia. She has published more than 25 papers in reputed journals and over 20 participations on scientific meetings.

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