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# Preparative isolation and structure determination of three steroidal saponins and their isomers from *Dioscorea deltoidea* based on an NMR and HRMS methods

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*Dioscorea* is a genus in the family Dioscoreaceae. Numerous pharmacological studies investigated the biological activity of compounds found in *Dioscorea*. These properties are attributed to the presence of biologically active compounds called saponins [1]. Traditionally, steroid saponins are extracted from intact plant. However, the isolation of saponins in an individual form from a plant requires time-consuming sample pretreatment. The development of a biotechnological method for isolating the necessary compounds by extracting them from cell cultures simplified this process [2]. However, secondary metabolism has a number of features specific to cultured cells, such as the synthesis of both stereoisomers. Thus, studying metabolites from cell culture is an important task especially since isomers oftentimes have different biological activities. In our work, we developed a method of preparative isolation of steroid saponins and their stereoisomers from the cell culture of *Dioscorea deltoidea*. The isolated compounds were further subjected to NMR and HRMS analysis. The optimization of the process included variation of the following chromatographic parameters: stationary and mobile phases, composition of the eluent, concentration of the modifier, column thermostat temperature, injection volume and flow rate. It was found that the best separation is achieved in the isocratic mode with the flow rate 0.25 mL/min, at a column thermostat temperature of 22°C and injection volume - 2 µl.

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**References**
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[2] Khandya MT et al. *Prikladnaya Biokhimiya i Mikrobiologiya.* 2016; 52:614–620.