



Accumulation of Polyphenolic Substances in Leaves and Flowers of Giant Knotweed (*Polygonum Sachalinense*) in Republic of Moldova Conditions

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Polyphenolic substances contained in many plants possess strong antioxidant activity. One of the perspective plants for obtaining polyphenols manifesting pharmacological effects is the giant knotweed or the Sakhalin knotweed, syn. *Polygonum sachalinense* F. Schmidt, syn. *Fallopia sachalinensis* Ronse Decr., *Reynoutria sachalinensis* Nakai, *Tiniaria sachalinensis* Janch. This plant has been adapted for conditions of Republic of Moldova by scientists of Botanical Garden (Institute), who have bred a new variety *GIGANT*.

The leaves have been collected during the entire season at different vegetation stages, namely at 20, 60, 150 and 180 days of growing up. The extracts from leaves and flowers have been prepared using water-ethanol solution with concentration of 70%. The total polyphenolic content has been determined by Folin-Ciocalteu procedure and calculated in gallic acid equivalent.

At the beginning of intensive development of plants (on 20th day) the leaves contained about 5.31±0.05mg of polyphenols per g of fresh weight. During the period of 20-60 growing days the accumulation of polyphenolic substances in leaves increased fast and their content reached to value of 20.45±0.32mg/g. The maximal content of polyphenols in leaves as well as in flowers was detected at the stage of abundant flowering at 150th growing day. In this stage the flowers contained 1.2 times more polyphenolic substances than the leaves. This balance changed substantially in period of seed formation (180 days), when the content of polyphenols in leaves decreased insignificantly from 28.90±0.26 to 24.20±0.62mg/g, but in flowers this index dropped by 4.5 times. This fact reflected the physiological changes in plants associated with processes of seed formation and their preparation for winter. Thus, leaves and flowers of giant knotweed in conditions of Republic of Moldova accumulated polyphenols in big quantities, which justifies its use as a medicinal plant and a new source of valuable bioactive substances.

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