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Chemical characterization and ACE-inhibitory activity of acetone extract of *Geranium robertianum* L. flower

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Abstract

Geranium robertianum L. (Geraniaceae) has been traditionally used to treat a range of ailments, including high blood pressure Recent in vitro studies have shown that some traditional usages, such as antimicrobials, were scientifically confirmed. Although the phytoconstituents of this plant species have been extensively studied, some plant parts used in traditional medicine, such as flowers, have not yet been chemically characterized. Given that the inhibition of the angiotensin converting enzyme (ACE) is one of the most significant mechanisms for decreasing blood pressure, we undertook this investigation to find scientific support for G. robertianum anti-hypertensive traditional use. Acetone was used to extract plant material since prior research revealed that it had the highest total phenol and total flavonoid levels, which are considered to be the primary sources of bioactive chemicals. The chemical composition of *G. robertianum* collected in R. Srpska was determined using the LC MS method, and the ACE inhibitory activity of acetone extract was measured through the enzymatically cleaved 3-hydroxybutyric acid from 3-hydryoxybutyryl-gly-gly-gly. Geraniin, a hydrolysable tannin with a Mr of 952.6, was the most abundant single chemical found in the extract. Derivatives of galic and ellagic acids, as well as flavonoids like kaempferol and quercetine, a were also present in significant amounts. *G. robertianum* acetonic floral extract has been shown to be an effective natural ACE inhibitor with an IC50 of 22.14 μg/mL. To the best of our knowledge, this is the first report on the chemical composition of *G. robertianum* floral acetonic extract and its ACE inhibitory activity.

Key words: Geranium robertianum L., flower acetone extract, LC-MS, ACE inhibitory activity