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Phytochemical study of *Kochia prostrata*

Abstract: In this study, complete comparative analysis of the component composition of plant of the genus *Kochia prostrata* were conducted for the first time. The data for quantitative determination of biologically active compounds and the study of amino, fatty and phenolic acids composition of plant of the genus *Kochia prostrata* family *Chenopodiaceae* were presented. 20 amino acids, 8 known fatty acids and 4 phenolic acids have been identified in the studied objects; their quantitative composition has been established. The major amino acids were glutamic acid (23.46%), aspartic acid (1.88%) and alanine (5.82%), while the major fatty acids were oleic (64.9%) and linoleic (22.0%), palmitic (5.3%) acids. Moreover, a sufficient amount of protocatechuic, vanillic, isovanillic and p-coumaric acids have been found.

Key words: *Kochia prostrata*, amino acids, fatty acids, phenolic acids.

Introduction

Kochia prostrata Schard belongs to the family *Chenopodiaceae*, a family comprising of probably about 100 genera and 1400 species. It mostly comprises perennial herbs or shrubs mostly xerophytic or halophytic.

The genus *Kochia* is similar to *Bassia* but flowers are not hidden in hairs. *Kochia* is found in arid areas, deserts, and costal and saline habitats of Central Asia, North and South Africa, Europe, Russia. There are 10 species of the plant genus *Kochia*; 9 of these are indigenous to Kazakhstan [1,2].

The genus *Kochia* has been used in traditional Chinese medicine to treat diuresis and skin diseases. This is also used for making brooms. It has also been used for the treatment of pain in micturition, rubella, eczema and cutaneous pruritus in traditional Chinese preparations. The cardiogenic and diuretic activities of the plant have already been reported [3-6].

One of the important tasks of modern pharmaceutical science is the search for domestic sources of biologically active substances from plants to create on their basis of drugs of different pharmacological direction. These plants include the family *Chenopodiaceae*.

Object of current study is the aerial parts of *Kochia prostrata* Schard. The aim of our study was to investigate amino and fatty acids composition of aerial parts of *Kochia prostrata* Schard by gas chroma-

tography. The isolation and identification of amino, fatty and phenolic acids composition from the aerial part of *Kochia prostrata* was the first ever to be reported from this plant.

Materials and methods

Analysis of amino acids. To determine the amino acid in 1 g of substance, it hydrolyzed in 5 ml of six normal (N) hydrochloric acid at 105°C for 24 hours in vials sealed under a stream of argon. The hydrolyzate evaporated to dryness three times on a rotary evaporator at a temperature of 40-50°C and a pressure of one atmosphere. The resulting precipitate dissolved in 5 ml of sulfosalicylic acid. After centrifugation (1500 rev / min) for 5 minutes, the supernatant passed through a column of ion exchange resin Dowex 50, H-8, and 200-400 mesh, at a rate of 1 drop per second. Thereafter, the resin washed with 1-2 mL of deionized water and 2 ml of 0.5 N acetic acid; Resin washed to neutral pH deionized water.

Amino elution from the column passed there through 3 ml six N NH₄OH solution at 2 drops per second. The eluate collected in a round bottom flask with deionized water used for washing the column to neutral pH. The flask contents evaporated to dryness on a rotary evaporator under a pressure of one atm. and a temperature of 40-50°C.

After addition to the flask of 1 drop of a freshly prepared 1.5% solution of SnCl₂, 1 drop of 2,2-di-