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Macro- and microscopy of upper parts from *Limonium gmelini* genus plants

Abstract

This article presents data on macroscopy and microscopy of upper parts of plants from *L. gmelini* genus in accordance with the regulatory requirements for medicinal plants introduced into medicine, by leading pharmacopeias of the world, in particular by the European Pharmacopoeia, and harmonized with the State Pharmacopoeia of the Republic of Kazakhstan.

**Keywords:** macroscopy, microscopy, plant, upper parts, Limonium gmelini, pharmacopoeia.

Introduction

For the development of pharmaceutical production in Kazakhstan an important source is its rich and diverse wild flora, with over 6000 species of the plants, of which over 100 are medicinal. Of the available medicinal plants only 5% are of commercial importance.

In recent decades there has been a clear tendency for increase in the total share of issued medicines and herbal preparations. To date, the figure is over 50%, which is due to the softness of their action, low toxicity and rare induction of allergic reactions, the latter is particularly important in the case of diseases requiring long-term treatment. Among the medicinal plants of the native flora, related to halophytes and tekyns, promising are those of the Plumbaginaceae family *Limonium* genus, consisting of 18 species, growing in all regions of Kazakhstan. These plants can be reproduced vegetatively and by seed, differ by rapid growth and high yield. The most known and studied is *L. gmelini*, harvesting is possible in areas of wild growing bushes of Zhambyl and Fnbchskazakhskii district of Almaty region.

Productive supply of dry roots of two commercially important species *L. gmelini* and *L. myriantham* in Almaty, Semipalatinsk, Zhambyl, Atyrau, West and East Kazakhstan regions exceeds 54.4 thousand tons for the area of 160 thousand hectares [1-3].

Roots of *L. gmelini* were introduced into medicine and State Pharmacopoeia of the Republic of Kazakhstan as a source for effective medicines on their basis, such as tincture “Limonidin” and substance “Limonidin”, registered and recommended by the Ministry of Health care to the industrial production and use in medicine as anti-inflammatory and antiviral remedy. Syrup and ointment under a unified name “Limonidin” were obtained on the basis of the substance “Limonidin” [4].

However, high antioxidant activity of substance extracted from the upper parts of *L. gmelini*, commensurate with that from the roots of *L. gmelini*, leading to conclusions about the prospects for its implementation into practice, which will allow to use the whole plant, increase their resource base and promoting creation of new, original, native herbal medicines [5]. One of the most important indicators for the identification and standardization of studied medicinal plant objects at their introduction to the medicine is their macroscopic and microscopic analysis.

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