

Influence of environmental conditions on the formation of generative organs *Ferula tadshikorum* M. Pimen

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Abstract. Influence of environmental conditions on the formation of mass flowering of the ferula of Tajik was presented. Ferula of Tajik is one of the edificators in the herbaceous community in the type of half-savanna and shiblyak vegetation of South Tajikistan.

The paper provides data on the influence of environmental conditions on the formation of mass flowering of the Tajik ferula (*Ferula tadshikorum* M. Pimen). Tajik Ferula is one of the edificators of the herbaceous community in the type of vegetation of the half-savannas and shiblyak of Southern Tajikistan.

In the flora of Tajikistan, you can find 37 species of the genus *Ferula* L., distributed from the shiblyak belt and large-grass semi-savannahs to subalpine meadows in various types of vegetation [1]. It was carried out the observation of the mass flowering of the Tajik Ferula and was established the influence of environmental factors on the formation of generative buds of the regeneration of *Ferula tadshikorum* M. Pimen. Ferula often acts as a dominant and subdominant in the herbaceous cover of semi-savage and shiblyak types of vegetation in Southern Tajikistan; in terms of the developmental rhythm, it is a hemiephemeroïd, which occurs during the humid periods of the year (March, April) after which plants dormancy [5].

Tajik Ferula is a perennial plant with polycyclic monocarpic shoots formed by two types of shoots – rosette vegetative and semi-rosette with generative shoots [5].

Species of the genus *Ferula* are of great practical importance as fodder, food, medicinal, melliferous, and cenosis-forming plants (Rahimov, Halimov, 2016). The study of the factors affecting the flowering period of plants allows us to give grounded recommendations for the rational use of *Ferula* communities in the national economy of Tajikistan.

In this regard, it was studied the influence of environmental factors (the wet period in April) on flowering in the community of the Tajik Ferula in the half-savanna and shiblyak belt.

During the study period, it was determined that the Tajik Ferula growing in the territory of Southern Tajikistan does not form generative organs every year [5] and only in some years blooming is observed throughout Southern Tajikistan. Intrarenal (embryonic)

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development in the Tajik Ferula begins two years before overground development. In the first year, metameres of rosette shoots are laid, in the second year, in rainy and cool weather, as a rule, in April the rhythm of plant development is extended and this is the reason for the inception of the rudiments of metameres of generative organs – flowers.

Such features were previously noted for other edificators of the half-savannahs *Prangos seravschanica* (Regel et Schmalh) Korov and *P. pabularia* Lindl., *Thermopsis dolichocarpa* V. Nikrit. [2, 3, 4]. In dry years, the vegetation ends early (in April), so the rudiments of the generative organs are not laid, which leads to a break in the flowering of plants. However, sometimes mass flowering is observed in some natural boundaries, for example, at the stationary site of Mullo Monna (Sarsarak ridge) of the Dangara region, mass flowering was observed in 2012 and 2021, because during these years, abundant rainfall in April was observed, which led to an extension of the developmental rhythm, which influenced the formation of generative buds of renewal. Mass flowering in the community concentrated on the Gozimalik ridge (stationary Tobiin site) was observed in 2005 and 2017, the reason is also associated with the high humidity of previous years (2004 and 2016).

During the period of our study (2003-2020), there were years of mass flowering in 2005 and intermittent ones: in 2011, 2013, 2017 in the Aksu tract in the Dakhanakiik forestry; in 2008 in the Esanboy tract; in 2009, 2021 in the Kangurt and Jilondi salt hills of the Temurmalik region; in 2011, 2021 around the Nurek reservoir, especially on the southern slope of the Shar-Shara pass, the Talkhova tract of the Dangara region, in 2012, 2021 in the Mulo-Mona and Sangtuda (Kheli Buz) tracts of the Dangara region; in 2013, 2017 in the salt mountains of Khujamumin and the area of Sh. Shohin, which were associated with heavy rainfall in April of the previous year. In other years, only a few specimens of the blooming Tajik Ferula were recorded. During the years of mass formation of generative shoots, this species is dominant in the communities. Sometimes, in semi-savannah and shiblyak communities, high-stemmed shoots, temporary *Ferula synusia* (Fig. 1), are formed, characterized by an unusually bright yellow landscape.



Fig.1. Tajik *Ferula* communities in the Mulo-Mona tract, Dangara region, May, 2012

Thus, heavy rainfall in the month of April causes increased soil moisture, which leads to an extension of the development rhythm, affects the formation of generative buds, flowering shoots and mass flowering of individuals.

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