

The Characteristics of Flowering in *in situ* and *ex situ* Conditions of Species of *Pyrus* L. Genus on North-Eastern Part of the Greater Caucasus

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This article represents the comparatively research results the characteristics of flowering in cultural and natural conditions of 5 wild pears species which were spreading in northeastern part of the Greater Caucasus. As a result of investigation there has been identified that, species of pear studied on reproductive phase are normally flowering and producing fruit in cultural and natural conditions and the narrowing of their areal are based on anthropogenic factors than their biological characteristics.

Keywords: Greater Caucasus, northeastern, pear, reproductive, flowering, *in situ*, *ex situ*, ontogenesis

INTRODUCTION

The reproductive phase is one of the most important stages ontogenesis of all lively systems. It is known that the processes of flowering are possess different characteristics in plants kingdom. In the investigation time are learnt the species of plants at the age of blooming, flowering, producing fruit and seed problems in cultural and natural conditions. The entering to flowering phase tree and bush plants are depend on their individual biological characteristics also their ecological factors of environment (Gurbanov, 2005; Iskender, 2010).

In the investigation area which were spreading species 5 wild pears are learnt the comparatively characteristics of flowering and producing fruit in cultural and natural conditions. Therefore which were spreading species of wild pear on north-eastern of Greater Caucasus in *in situ* and *ex situ* conditions of flowering and producing fruit characteristics the comparatively were carried about learning scientific-research works by us.

MATERIALS AND METHODS

The material of research was organized both of cultural and natural conditions which were spreading north-eastern part of Greater Caucasus about 5 species of *Pyrus* L. genus (*Pyrus caucasica* Fed., *P.communis* L., *P.georgia* Kuthath, *P.vsevolodii* Heideman, *P.salicifolia* Pall).

The essential aim of research work is consist of which were spreading in research area in natural and cultural flora the species of pear on comparatively flowering and producing fruit process learning of maintain genefond of plants defining role and giving analysis. The fulfilling of research work was used a number of methods. So, researching rare

species plants for learning in natural condition took the key methods by Zaychev, 1981; Beideman, 1979; Coper, 1985; Gurbanov, 2004 and etc.

RESULTS AND DISCUSSION

In the research time which was spreading on north-eastern part of Greater Caucasus about 5 species of *Pyrus* L genus were learned on comparatively in cultural and natural conditions. Besides was specified on both 2 conditions in same plants numbering and maturing time of flowering and producing fruit. It is known that researching plants are flowered and produced fruit at the age of 6-7 in cultural condition (*P.caucasica*, *P.vsevolodii*), and depend on from species at the age of 8-11 in natural condition (*P.georgia*, *P.salicifolia*). This process in the same of these plants both 2 conditions were observed at the age of 7-11.

The phenological observations were showed that are possess 9-21% high producing fruit in natural condition depends on from species in comparison with cultural condition. In the research time species of researching plants the process of flowering was learned on comparatively in natural and cultural conditions and was identified with time the beginning of flowering, ending, continuing of flowering period and life period of flower in every type (table 2).

In the research time in every species of plant were specified on both conditions numbering and maturing time of flowering and producing fruit. The phenological observations were showed that are possess high producing fruit in *in situ* condition depends on from species in comparison with *ex situ* condition.

Table 1. *In situ* and *ex situ* conditions of research plants flowering, producing fruit and seed.

№	Species	The age of flowering		Is flowering		Producing fruit and seed	
		<i>Ex situ</i>	<i>In situ</i>	<i>Ex situ</i>	<i>In situ</i>	<i>Ex situ</i>	<i>In situ</i>
1.	<i>Pyrus caucasica</i>	7	10	+	+	+	+
2.	<i>Pyrus communis</i>	6	9	+	+	+	+
3.	<i>Pyrus georgia</i>	7	9	+	+	+	+
4.	<i>Pyrus vsevolodii</i>	6	8	+	+	+	+
5.	<i>Pyrus salicifolia</i>	7	11	+	+	+	+

Table 2. The characteristics of flowering in cultural and natural condition the species of *Pyrus* L. genus

№	Species	<i>Ex situ</i>				<i>In situ</i>			
		Flowering				Flowering			
		Beginning	Ending	The period of cont. (day)	Life period of flower (day)	Beginning	Ending	The period of cont. (day)	Life period of flower (day)
1	<i>P. caucasica</i>	19.04	02.05	13	7-9	24.04	11.05	17	7-10
2	<i>P. communis</i>	18.04	25.04	11	8-9	25.04	10.05	15	9-11
3	<i>P. georgia</i>	16.04	27.04	13	8-10	28.04	13.05	15	8-11
4	<i>P. vsevolodii</i>	17.04	29.04	12	6-10	10.04	25.04	15	7-9
5	<i>P. salicifolia</i>	19.04	03.05	14	7-10	16.04	29.04	13	8-11

The result of phenological observations which carried out and information of literature were showed us researching plants belong to *Rosaceae* family entering reproductive phase is faster than tree and bush plants which belonging other families (Iskender, 2008; Iskenderov, Guliev, 1990; Costina, 2005).

It is known that carried out observations begins late between 3-4 years which are researching in *in situ* condition the species of *Pyrus* L. rather entering to reproductive phase in *ex situ* condition plant. The basic reason of this condition is growing and do not have agrotechnical service. The agrotechnical services of making in *ex situ* condition to plants are one of the accelerating factors of entering to productive phase.

It is known that it can affect living environment the factors of climate and structure of phytocenosis spreading the same species on this or that degree reaching to maturity age of plants (Guliev, Iskenderov, 1987; Lesica, Gurbewch, Crone, 2006).

The flowering characteristics which are learned plants in condition (ANAS, Central Botanical Garden) Absheron that had been introduced all of the species research about *Pyrus* L. genus entered the phase of flowering. The phonological observations were showed which carried out is observed flower fall down process before reproduction in species *P. salicifolia*. The reason of this we can explain that depending on from humid, hot and wind. We can say that the phenological observations which carried out were not observed directly proportional continuing period of flowering between life periods of flower. As seen from here we can say that there is no dependence life period of

flower with flowering phase. We can connect it with individual biological characteristics of plant. It showed that comparatively analysis the process of flowering in *ex situ* and *in situ* the continuing period of flowering and life period of flower there is no difference between two conditions. In the researching time were observed that plants which are in *ex situ* condition the continuing period of flowering comparison with in *in situ* more 1-5 days. The happening of this difference mainly we can coordinate climate factors and also with the factor of temperature. It was identified that the result of analysis rare plants normally flowering and producing fruit.

Thus researches which carried out and the results of analysis has been identified that investigated plants normally flowering and producing fruit in every two conditions.

On this we can say that the narrowing area of these plants is depending on anthropogenic factors than their individual biological characteristics.

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Böyük Qafqazın Şimal-Şərq Hissəsində *Pyrus L.* Cinsi Növlərinin *in situ* və *ex situ* Şəraitlərində Çiçəkləmə Xüsusiyyətləri

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AMEA Mərkəzi Nəbatat Bağı

Məqalədə Böyük Qafqazın Şimal-Şərq hissəsində yayılmış 5 yabanı armud növünün çiçəkləmə xüsusiyyətləri mədəni və təbii şəraitlərdə müqayisəli şəkildə tədqiq edilmişdir. Tədqiqat nəticəsində müəyyən olunmuşdur ki, reproduktiv mərhələsi öyrənilən armud növləri mədəni və təbii şəraitlərində normal çiçəkləyib meyvə verir və həmin bitkilərin təbiətdə areallarının daralması onların bioloji xüsusiyyətlərindən çox antropogen amillərdən asılıdır.

Açar sözlər: *Böyük Qafqaz, şimal-şərq, armud, reproduktiv, çiçəkləmə in situ, ex situ, ontogenez*

Особенности Цветения В Северо-Восточной Части Большого Кавказа Видов Рода *Pyrus L.* В Условиях *in situ* и *ex situ*

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В статье проводится сравнительное исследование характеристики цветения в культуре и природных условиях 5 видов диких груш, распространенных в северо-восточной части Большого Кавказа. В результате исследования было выявлено, что груши, у которых изучался репродуктивный этап, нормально цветут и плодоносят как в условиях культуры, так и в природе. Уменьшение ареала этих растений в природе зависит в основном не от биологических условий, а от антропогенных факторов.

Ключевые слова: *Большой Кавказ, северо-восток, груша, репродуктивные, цветущие in situ, ex situ, онтогенез*