

Morphology Of Fruits And Seeds Of Chaenomeles Species

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Abstract: The article presents the results of the study of fruit and seed morphology of ornamental Japanese quince or Japanese quince (*Chaenomeles japonica* (Thunb)Lindl.), Mauley's chaenomeles (*Chaenomeles Maulei* (Mast.) Schneid.). The diameter and weight of fruits and seeds were determined.

Key words: Fruit, bush, species, flower, seed, branch, cutting.

Introduction: In recent years, special attention has been paid to seasonal flowering shrubs in the landscaping system. They have a unique decorativeness, due to the characteristics of flowering in different periods, it is possible to form a "permanent blooming garden" system with their participation.

Green areas are the best environment for recreation for city dwellers and residential areas. The place of green flora is also incomparable in the architectural landscape of the city. In urban conditions, the formation of microclimate, air temperature, amount of precipitation, humidity of air and soil, wind regime, atmospheric pressure has its place in the regulation of green vegetation. After studying the types of trees and shrubs with decorative leaves and leaves in the green areas created on the basis of the styles of modern landscaping in the city of Tashkent, they are followed according to different styles of artistic composition to show their decorative and aesthetic characteristics.

Among these promising species is Japanese quince or henameles (*Chaenomeles japonica* (Thunb) Lindl.). - An ornamental bushy plant belonging to the quince family is of special importance.

4 types of *Xenomeles* are widely distributed in the world. The homeland of this plant is China and Japan, and 4 species can be found [1]. This plant is a deciduous and semi-evergreen shrub with beautiful flowers. It has thorns on its branches. The dark green leaves have a glossy appearance and are arranged in rows on the stem. Especially large dark red and orange flowers evoke aesthetic pleasure. *Chaenomeles japonica* is a shrub growing up to 1.7 meters tall and 1.8 meters wide [2].

Mauley quince, or chaenomeles (*Chaenomeles Maulei* (Mast.)Schneid.). Mauley's peony is a deciduous, semi-evergreen, beautiful flowering shrub 0.3 to 1 meter tall. The dark green leaves are oval in shape, serrate, 3-5 cm long, the edges are serrated, shiny, and arranged in a row. Especially the large dark red and yellow flowers that bloom in early spring leave a strange impression on a person. Flowers are 2.5-3.5 cm in diameter. It blooms before the leaves appear on the bush, and the flowering is continuous and oblique. The fruits of the Mauley quince are similar in appearance to apples, with a smell reminiscent of fragrant quince. The fruits are firm and clustered on the branch. Mauley's peony plant is a moderately drought-tolerant shrub that is demanding on the soil. It is frost-resistant, but branches, branches, and buds may be partially damaged in a harsh and snowy winter. Flower buds located in the upper part of the tree are more affected by frost, and those located near the ground are less affected by frost.

Studying the morphology of seeds and fruits of representatives of the genus *Chaenomeles* is important in solving controversial problems of systematics and phylogeny of plants.

In Uzbekistan, scientific research on seed germination of promising plants is increasing day by day and serves as a basis for proper organization of agrolantations [3, 4, 5, 6, 7, 8].

Scientific research studies on bioecological characteristics of *Chaenomeles* species in Uzbekistan Gulamkhodjaeva Sh. conducted by [9, 10].

Object and method of research.

Morphological characteristics of fruits and seeds of *Chaenomeles maulei* and *Chaenomeles japonica* species were studied. Morphological study of angiosperm fruit shells has both practical and theoretical importance. The fruit morphology of *Chaenomeles* species has not been sufficiently studied. Ripe fruits have their own shape, they are large and small round in appearance, the seeds are inside the pulp, and the seeds are drop-shaped and dark brown in color. Morphological signs of seeds and fruits are different in each species, and these signs are relatively constant at the level of the genus. Therefore, the importance of these signs in systematics is increasing [11].

The weight of 1000 seeds is of great importance in afforestation: large and heavy seeds have a high planting quality. It is necessary to know the weight of the seeds to determine the planting standards. To determine the weight of 1000 seeds, two samples of 500 seeds were taken from each species, and the weight of these samples was determined by weighing.

As a result of the study



1-расм. Маулей Хеномелес уруғлари



2-расм Японика Хеномелес уруғлари

The seeds are surrounded by a hard shell on the outside and have a decorative appearance. The endosperm completely occupies the seed. The seed coat is also involved in seed protection.

Thus, *Chaenomeles* seeds were divided into the following diagnostic characters: seed size, shape, participation of external organs in seed protection. The genus *Chaenomeles* was found to be highly adapted compared to other species.

The fruits of Japanese *Hemenomele* were picked on October 28, the fruit color is yellow, the fruit length is 72.5 mm, the fruit diameter is 66.4 mm, the fruit weight is 166 g, the seeds in 1 kg fruit are 17800-18000, the length of one seed is 8.4 mm, the seed width is 4.7 mm, 1000 seeds weigh 56 g, the average yield of a bush is 38.2 kg (Table 1).

The fruits of *Mauley Henomelesi* were picked on October 25, the fruit color is yellow, the average fruit length is 36.8 mm, the fruit diameter is 43.36 mm, the fruit weight is 38 g, the seeds in 1 kg fruit are 30000-32000, the length of one seed is 7.36 mm, the seed width is 3.36 mm, weight of 1000 seeds is 23 g, the average yield of a bush is 3.7 kg (Table 2).

Table 1
 Morphological description of fruits and seeds of *Henomeles japonica*

№	Мева терилган вақт	Мева ранги	Мева узунлиги, мм	Мева диаметри мм	Мева оғирлиги г	1 кг мевадан уруғ чиқиши, дона	Уруғ узунлиги, мм	Уруғ диаметри, мм	1000 дона уруғ оғирлиги, г	Бутанинг ўртача ҳосилдорлиги, кг
1	28. X	Сариқ	72,47	66,33	166	17800	8,4	4,7	56	3,8
2	28. X	Сариқ	67,57	60,94	131		8,22	6,03		
3	28. X	Сариқ	53,09	54,68	80		8,26	3,73		
4	28. X	Сариқ	59,76	67,76	110		8,09	5,07		
5	28. X	Сариқ	49,97	49,37	72		9,80	5,84		

Table 2
 Morphological description of fruits and seeds of *Maulei Henomeles*

№	Мева терилган вақт	Мева ранги	Мева узунлиги мм	Мева диаметри мм	Мева оғирлиги г	1 кг мевадан уруғ чиқиши, дона	Уруғ узунлиги, мм	Уруғ диаметри, мм	1000 дона уруғ оғирлиги, г	Бутанинг ўртача ҳосилдорлиги, кг
1	28. X	Сариқ	36,74	43,36	38	30000	7,36	3,36	23	3,7
2	28. X	Сариқ	51,93	40,45	34		6,92	3,94		
3	28. X	Сариқ	43,63	47,53	49		7,02	4,47		
4	28. X	Сариқ	31,66	40,24	31		7,13	3,53		
5	28. X	Сариқ	37,01	29,42	19		7,31	4,76		

Summary. Xenomeles species are promising in greening the cities of Uzbekistan. Decorative forms of Xenomeles are recommended for landscaping in all regions of our Republic. Widespread use of this plant in greening is economically effective, and besides, it creates conditions for adding more beauty to the environment and corners of our country.

Used literature

1. Slavkina T.I., Gomolitsky P.A., Ksynkina N.N. i dr. (1982). Dendrology of Uzbekistan: Family complexes of pear, apricot, krushina, joster, xenomeles and beresklet. - Tashkent: "Science", XII: 184-190.
2. Gulamkhodjaeva Sh., Khomidov M., Uralov J. (2018). Importance of Japanese quince in bioecology and greening // Materialy Mejdunarodnoy nauchno-prakticheskoy internet-conference "Tendentsii i perspektivy razvitiya nauki i obrazovaniya v usloviyax globalizatsii". Pereyaslav-Khmel'nitsky. - S. 730-731.
3. Tokhtaev, B. Yo., Mahkamov, T. Kh., Tolaganov, A. A., Mamatkarimov, A. I., Mahmudov, A. V., Allayarov, M. O'. (2015). Instructions on the organization of plantations of medicinal and nutritious plants and preparation of raw ash.
4. Turakulov A.A., Kholmurotov M.Z. (2019). Artichoke seed field germination and turfgrass development. Journal of agroprocessing, 4: 39-42.
5. Jumaboev G'.Sh., Inoyatova M.Kh., Makhkamov T.Kh. (2022). Cultivation prospects and seed germination of the invasive plant, *Vaccaria hispanica* (Mill.) Rauschert. Bulletin of GulDU, 1: 17-23.
6. Yuldasheva N. E., Aminova M. (2022). Cultivation methods and medicinal properties of *Albuca bracteata*-Indian onion. Academic research in educational sciences, 3(2): 376-384.
7. Juraev J.M., Kholmurotov M.Z., Khalilova K.A. (2021). Biomorphological properties of honeydew seed. Academic research in educational sciences, 7: 32-36.
8. Berdiev E.T., Kholmurotov M.Z., Chorshanbiev F.M. (2019). Ornamental flowering shrubs for landscape design (monograph). – Tashkent: UzR FA Minitypography. - B. 23-25.
9. Gulomkhodzhaeva Sh.F., Ashirov V.R., Berdiev E.T. (2021). Bioecology of *Xenomeles* (*Chaenomeles* Lindl.) species and use in landscaping // Bulletin of Agricultural Science, 2(86/2): 139-142.
10. Gulamkhodjaeva Sh.F (2019). Propagation technology of Japanese quince (*Chaenomeles maulei* (Mast.) Schneid.) from cuttings in the conditions of Uzbekistan // Proceedings of the international scientific and practical conference "Tashkent State Agrarian University - 90 years old: history, today and prospects". Tashkent. - B. 323-326.
11. Berdiev E.T., Gulamkhodzhaeva Sh.F. (2019). Propagation of landscape trees. Study guide. - Tashkent: Editorial-publishing department of Tosh DAU. - B. 130-131.