

Browicz, K.

DISTRIBUTION OF WOODY *ROSACEAE* IN W. ASIA.  
II. ON THE DISTRIBUTION OF *MESPILUS GERMANICA* L.

(O rozmieszczeniu *Mespilus germanica* L.)

*Mespilus germanica* belongs to the species whose natural range of distribution is very difficult to draw. This shrub has been under cultivation already in the antique world and in many places it has gone wild to such an extent that it is possible to consider it as an indigenous plant. According to G. Hegi [25] medlar has been known in Greece in the 7th century B.C. (Archilochos from Paros) and was later, in the 2nd century B.C. introduced to Rome during the Macedonian wars. From there it has quickly spread through southern and central Europe thanks to cultivation in orchards. In Greece at the time of Theophrast it has been known under the name of "sataneois" (Historia Plantarum III, 12.5) while the generic name of *Mespilus* originated in ancient Rome. According to V. A. Evreinoff [16] on the basis of a paper by G. Contenau (La vie quotidienne à Babylone, Paris, 1950), *M. germanica* was commonly cultivated in Babylon long before its war with the Persians.

In Europe [25, 30, 44] *M. germanica* is most probably only an introduced species, often naturalized (escaped from cultivation). In this form it is known from southern England in Sussex, Kent and Surrey, where according to J. C. Loudon [32] it is cultivated since times immemorial though the first records of it come from the year 1597 [11]. In Germany [25] it is scattered in the central and southern part of the country becoming wild near human settlements. It is also under cultivation in Spain [10], and Czechoslovakia, mainly in the south of Moravia and Slovakia [15] and both cultivated and gone wild in France [12], Holland [34], Austria and Switzerland [25], Italy [1], Yugoslavia [24, 30], in Corsica [7], Sardinia, Sicily and Malta [1], in Rumania [9] and in the Ukraine [14].

Bringing together the various opinions on the natural and naturalized occurrence of medlar it is possible to reach the conclusion that its true homeland is only in the southeastern part of the Balkan peninsula, in Asia Minor, on the Caucasus, Crimea, northern Iran and possibly also in Turkmenia (USSR). Thus the range would appear

to coincide ideally with the Euxino-Hercynian province representing the southeastern extremity of the Euro-Siberian region. To this province it is usual to include the southern shores of the Black Sea and the Caspian Sea and the adjoining on them mountain massifs and also sometimes southern Crimea, the environs of Novorossiysk and the Caucasus. It is characterized by the presence of numerous Arcto-Tertiary and Paleo-Mediterranean relics as for example *Abies nordmanniana*, *Pterocarya fraxinifolia*, *Carpinus orientalis*, *Fagus orientalis*, *Zelkova crenata*, *Parrotia persica*, *Rhododendron ponticum* [51] and it is to this group that medlar should be included.

Below I give a detailed characteristic of the occurrence of *M. germanica* in the countries where according to available evidence it appears to be a wild species. Simultaneously on the basis of the data in literature and the herbarium collections (primarily in the Herbaria of Edinburgh, Kew, Vienna, Leningrad, Stockholm, Jena and Jerusalem) I present a point map of the species occurrence (Fig. 1).

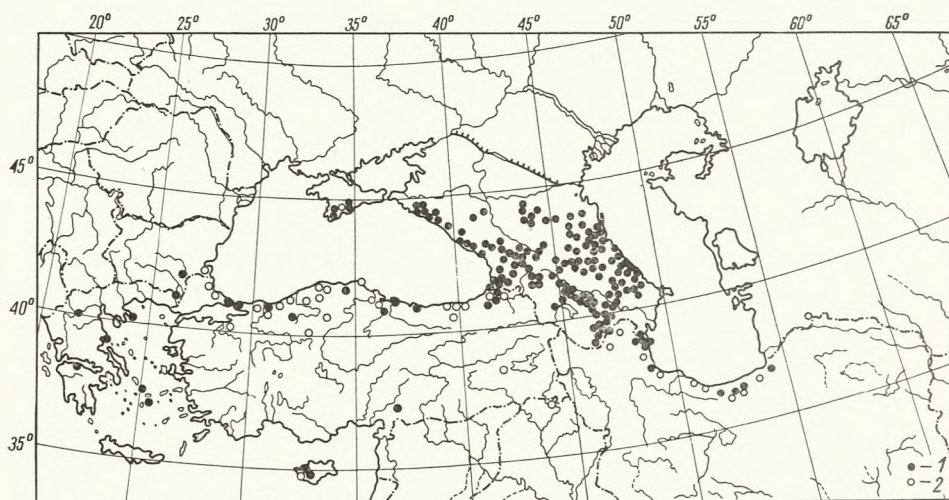


Fig. 1. Distribution of *Mespilus germanica* L.: 1. literature, 2. herbarium specimens.

**1. Bulgaria.** A map of distribution of *M. germanica* in Bulgaria has been published in 1943 by B. Stefanoff [45]. Medlar occurs wild only in the south-eastern part of the country, in Strandsha and in Sakar Planina [29, 46]. In Strandsha it grows as a shrub 3–4 m high, in oak forests (*Quercus pubescens*, *Q. conferta*, *Q. cerris*, *Q. petraea*) or more rarely in beech forests (*Fagus orientalis*), or in shrubs along forests edges together with such species as *Sorbus torminalis*, *S. domestica*, *Acer campestre*, *Cornus mas*, *Cotinus cogyggria* and *Crataegus pentagyna*. Similarly as *Ficus carica* and *Cydonia oblonga* it is often planted by the local population near houses and in orchards, particularly in Akhtopol. However the cultivated



specimens differ markedly from the wild ones, since they are characterized by better growth (small trees), larger fruits (about 2 or 3 times) and leaves as well as by complete absence of thorns [8].

**2. Greece.** The question of natural occurrence of *M. germanica* in Greece is as yet not very clear and so far data on the subject are very scarce. They come primarily from the study of C. Fraas from the year 1845, "Synopsis plantarum flo-rae classicae", which is much quoted by later authors [2, 21, 43]. According to E. Boissier [2] medlar occurs in the shrubbery of northern Greece. P. Tchihacheff [47] mentions stands from Mount Athos and from the Pindos range. From this range it has been reported by E. Halacsy [21, 22] and F. Hermann [27]. Besides that Halacsy (l.c) mentions two further stands in Thessalia near Lechonia and in Achaia between Kalavryta and Megaspilaeon and on the islands Corcyra, Naxos and Tenos. These last two islands are also quoted by K. H. Rechinger [43], who adds that *M. germanica* is also cultivated on Crete. However, A. Hayek [24] believes that in the Balkan peninsula natural stands of medlar are to be found only in Thessalia and in Thrace. In the remainder of the peninsula medlar is supposed to be only in cultivation in gardens and in Yugoslavia (Croatia and Serbia) occurs also spontaneously.

On the basis of the information presented above it is difficult to make a definite conclusion. It is only possible to suppose that if *M. germanica* indeed occurs in the wild state in Greece then that is most likely in the northeastern part of the country, in Thrace which borders with Sakar Planina in Bulgaria and possibly also in Thessalia. However on the map presented here all the stands mentioned are included.

**3. Turkey.** From the European part of Turkey, from Istranca Daglari medlar has been reported by F. Hermann [26] and D. A. Webb [49]. More stands are on record from the Asiatic part of Turkey. These are mentioned among others by P. Tchihacheff [47], E. Boissier [2], H. Handel-Mazzetti [23], K. Krause [31], K. H. Rechinger [41], H. Czeczott [13], J. Bornmüller [5] and G. Wagenitz [48]. Medlar grows here primarily along the shore line of the Black Sea, northern Anatolia (Bithynia, Paphlagonia and Lazistan) where the mean annual precipitation is above 600 mm. Outside this area only very sparse stands of the species can be found around Ankara [31], in Kurdistan near Bitlis (Kotschy, exs. 471) and near Marash [39]. These last two stands are so very much separated from the main part of the species range in northern Anatolia that it is dubious whether they could be considered as indigenous. Unfortunately there are no accurate data about the stands and only from Kotschy's herbarium label it can be read that *M. germanica* grows in rocky localities at about 1650 m elevation, which would make this a most elevated stand of medlar in Turkey.

In northern Anatolia *M. germanica* occurs almost from the shores of the sea to 1300 m above the sea level (M. Zohary and U. Plitman, exs. 2469-9), or rocks,



among macchie, in open oak forests (*Quercus ilex*, *Q. calliprinos*), or in mixed forests (*Quercus*+*Carpinus*+*Pinus* or *Abies*+*Fagus*), or even in spruce (*Picea orientalis*) forests. In European Turkey it also enters longos type of forests (J. Mattfeld, exs. 3326).

**4. USSR: a) Crimea.** Only in southern part of the peninsula [36, 50, 52]. According to V. F. Vassiljev [50] *M. germanica* is known in the Crimea only from individual specimens occurring sometimes near roads, which would suggest that it is a species that went wild and is not indigenous. However other stands in *Pinus pallasiana* or *Quercus pubescens* forests would appear to contradict this conclusion.

**b) Ante-Caucasus, Caucasus, Talysch.** For this region a detailed point map of stand distribution has been published in 1952 by A. A. Grossheim [20]. It can be distinctly seen from it that medlar occur primarily in the central part of the Caucasus, in the Talysch mountains and along the shores of the Black and Caspian Seas, and it avoids the dry and semidesert regions of Armenia and Azerbaijan. The most northerly stands of the species occur near Novorossisk, somewhat north of latitude 44°N.

According to Grossheim [19] *M. germanica* occurs in the Talysch Mts. as a substorey of oak forests (*Quercus castaneaefolia*) together with such species as *Ruscus hyrcanus*, *Danaë racemosa*, *Crataegus lagenaria*, *C. kyrtostyla*, *C. pentagyna*, and *Cydonia oblonga*, while in the central Caucasus, between the Elbrus and Kazbeck it appears in beech forests in company with *Sorbus torminalis*, *Cornus australis*, *Ligustrum vulgare*, *Evonymus latifolia* and *Ostrya carpinifolia*. Apart from that it grows for example in Daghestan on the Caspian Sea in oak-hornbeam forests (*Quercus iberica*, *Q. robur* and *Carpinus caucasica*) and in southern Armenia in park type of oak woods (*Quercus macranthera*) above 1600 m elevation. In vertical distribution *M. germanica* reaches in the Caucasus to 1800 m elevation [17, 37].

**c) Kopet-Dagh.** Here *M. germanica* has been found on only one stand in the Gjuen gorge, on the river Čandyр, in 1926. M. G. Popov [38] who has visited the stand himself claims that only very few specimens grow there among shrubs at about 650 m elevation. They bear small fruits about 2 cm in diameter. This stand has been reported in later years as natural by A. I. Poyarkova [36] and O. M. Poletiko [37]. P. M. Zhukowskii [52] believes that these are only forms that have gone wild which contradicts the opinion of Popov who writes that in Middle Asia (USSR) *M. germanica* is not cultivated anywhere. Thus the stand of medlar in Turkmenia, which is far removed from the nearest stands in Iran (Bender-Ges), is the most easterly of the species reported.

**5. Iran.** The range of *M. germanica* in Iran is limited to only a narrow belt of mountains north of Azerbaijan and to the Elburz range (provinces Gilan and Mazandaran). A stand of medlar from this region has been reported by E. Boissier [2], J. Freyn [18], J. Bornmüller [3, 4, 5], J. Bornmüller and E. Gauba [6],



K. H. Rechinger [42] and A. Parsa [35]. It grows primarily in forests and on steep rocky slopes. M. Zohary [51] claims that in the Chalus area, at 50 m elevation *M. germanica* occurs together with such species of trees and shrubs as *Populus canescens*, *Salix micans*, *Pterocarya fraxinifolia*, *Alnus subcordata*, *Ficus carica*, *Crataegus monogyna*, *Rubus caesius*, *Prunus divaricata*, *Albizzia julibrissin*, *Gleditschia caspica*, *Buxus sempervirens*, *Acer laetum*, *Paliurus spina-christi*, *Punica granatum*, *Diospyros lotus* and several species of lianas. In the same region, but at an elevation of about 1200 m medlar enters into the composition of beech forests together with such species as *Fagus orientalis*, *Carpinus betulus*, *Parrotia persica*, *Crataegus spp.*, *Ilex aquifolium*, *Acer insigne*, and *Ruscus hyrcanus*. A stand at the highest elevation in Iran, at 2050 m has been reported by Bornmüller [3] around Demawend.

**6. Iraq.** So far one stand of medlar has been found in Iraq by Ali al-Rawi in September 1957. It grows in the northeastern part of the country in the Helgord Range at about 3150 m elevation in a subalpine thorny-cushion [33]. A herbarium specimen from this stand is in the collection of the Royal Botanic Gardens at Kew. This specimen deserves a very special note, since it represents at the same time the most southerly and the most elevated stand of the species. It is probably indigenous, since it is unlikely that at such a high elevation it was planted. Also R. D. Meikle [33] does not report the cultivation of medlar anywhere in Iraq. This stand permits the supposition that also the stand near Bitlis in the Turkish Kurdistan, located about midway between Iraq and northern Anatolia, is of natural origin.

**7. Cyprus.** According to J. Holmboe [28] medlar occurs in the western part of Cyprus on two stands in Prodromo and between Makhareas and Lefkara. Unfortunately Holmboe does not give any characteristic of these stands thus it is not possible to say anything about their origin. The only herbarium specimen from Cyprus that I have seen has been collected by H. Lindberg in 1939 in the district Paphos "... in silva juxta rivulum inter Stavros et Kannavion"\*. This short note on the herbarium sheet label could indicate that medlar grows here in the wild state, however the considerable distance from the main part of the species range, and the documented cultivation of medlar in Crete creates certain doubts. Being unable to decide this point the Cyprus stands of medlar as well as those from Greece have been marked on the map.

Under natural conditions *M. germanica* is characterized by considerable variability. Particularly the fruits are variable and can be almost globular, ellipsoidal or even pear-shaped with the sepals variously arranged at the top — erect, slightly open, outturned and adhering to the surface of the fruit. As regards the leaves An.

---

\*In "Iter Cyprium" (Acta Soc. Sc. Fennicae N. Ser. B, 2, 7, 1946) Lindberg mentions one additional locality: Pentadactylos "Armenian Monastery" — verisimiliter culta.



and Al. Fedorov [17] have described two varieties in the Caucasus differing in leaf margin characters, and the distribution of which is determined by ecological conditions. The first, more mesophilic, occurs in the forest understorey, and is characterized by finely serrate or crenate-dentate leaf margins (var. *serrulata*), while the other, more xerophilic, occurs in shrubbery in open places and has entire leaf margins (var. *integrifolia*). The Fedorovs believe that the latter variety is evolutionarily the younger and has developed as a result of the migration of medlar from forest communities to open and dry sites. The presence of such varieties has been noted earlier by Freyn [18] in north Iran, and as it appears from the available herbarium specimens they grow also in northern Anatolia. Serrate leaves are to be found on the specimens of medlar from Iraq and entire margins are on the specimens from Cyprus (H. Lindberg, exs.). It is probable that both these forms are to be found also in cultivation since Loudon [32] mentions them under the names “*stricta* Dec.” (Aiton, Hort. Kew 2:172) — serrate leaves and “*diffusa* Dec.” (Aiton, l.c.) — leaves with almost entire margins.

As distinct from the wild forms, the cultivated forms are characterized by more vigorous growth, a lack of thorns and greater fruits, which can reach up to 5 or even 8 cm in diameter while on the wild forms they are 1.5–3 cm in diameter. The forms with large fruits are usually referred to as “*Macrocarpa*” or “*Gigantea*”. An. and Al. Fedorov [17] point out that among the cultivated forms of medlar in the Caucasus it is possible to distinguish three groups differing in the time of fruit ripening: 1. forms ripening early — in October, 2. medium — in November and 3. late — in December. According to A. D. Radžabli [40] trees of medlar cultivated in Azerbaijan (USSR) reach a height of 5 m and live up to 80–100 years and the mean weight of fruits from the best varieties amounts to about 35 gm. Such trees yield annually about 60–80 kg of fruits. Of other cultivated forms one may mention the stoneless form “*Apyrena*” and the forms with variegated leaves — “*Aureo-variegata*” and “*Argenteo-variegata*” [25].

It is striking that in cultivation medlar has developed in Europe and on the Caucasus while in the countries of western Asia it is almost unknown (or at least there is no information about it) and only E. G. Post and J. E. Dinsmore [39] mention that it is cultivated in Jordania (in Bat-Jala, Nabulus and Samara). Presumably this is conditioned by the specific requirements of medlar. It will grow in warm climate, but only where there is considerable precipitation (above 600 mm), and therefore in the drier climates of southern Turkey, Iran, Syria and Iraq its cultivation is not possible.

As an ornamental shrub *M. germanica* has little importance, and it is primarily cultivated for consumption purposes. However the fruits of medlar in a fresh condition are unsuited for eating, since they are too tart. Only when collected after being frostbitten, or stored for a while until fermentation, when the pulp becomes brown and soft they can be consumed in the raw or in the form of jams or jellies. Also a cider type of drink is prepared from these fruits. Ripe fruits contain about

10% of sugars, a little over 1% of malic acid and vitamin C, in the skin from 6.8 to 19.3 mg and in the pulp from 1.6 to 15.8 mg depending on the degree of ripeness [16, 25, 37, 52]. Compared with other representatives of the subfamily *Pomoideae*, as *Malus*, *Pyrus* or *Cydonia* medlar has not met with such general recognition as a fruit.

#### LITERATURE CITED

- [1] Baroni, E., Guida botanica d'Italia, Bologna 1955.
- [2] Boissier, E., Flora Orientalis, 2, Basileae, Genevae, Lugundi 1872.
- [3] Bornmüller, J., Beiträge zur Flora des Elbrusgebirge Nord-Persiens — Bull. Herb. Boiss, Ser. 2, Vol. 6, 1906, p. 605–620.
- [4] Bornmüller, J., Plantae Brunnsianae. Aufzählung der von F. Bruns im nördlichen Persien gesammelten Pflanzen — Beih. Bot. Centr. Vol. 33, No., 2, 1915, p. 270–334.
- [5] Bornmüller, J., Symbolae ad Floram Anatolicam, 4/5 Lief. Feddes Report (Beih.) Vol. 89, 1, 1940, p. 165–260.
- [6] Bornmüller, J., Gauba, E., Florulae Keredjensis fundamenta (Planta Gaubeanae iranicae), Feddes Report Vol. 39, 1935, p. 73–124.
- [7] Briquet, J., Litardière, de R., Prodrome de la Flore Corse, 2, 1, Genève 1913.
- [8] Browicz, K., The Trees Vegetation of the Bulgarian Part of the Strandsha Planina — Annales de la Section Dendrologique d.l. Soc. d. Pologne Vol. 15, 1961, p. 79–113.
- [9] Buia, Al., *Mespilus* in Flora Republici Popularae Romine Vol. 4, 1956, p. 271–272.
- [10] Caballero, A., Flora analitica de Espagna, Madrid 1940.
- [11] Clapham, A. R., Tutin, T. G., Warburg, E. F., Flora of the British Isles, Cambridge 1952.
- [12] Coste, H., Flore descriptive et illustrée de la France, 2, Paris 1903.
- [13] Czechtz, H., A Contribution to the Knowledge of the Flora and Vegetation of Turkey. Feddes Repert (Beih.) 107, Berlin-Dahlem 1939.
- [14] Dobročeva, D. M., “*Mespilus* in Viznačnik roslin Ukraini”. (Medlar (*Mespilus*) in the Plants of the Ukraine), Kiev 1965.
- [15] Dostál, J., “Květené CSR”. (Flowers of Czechoslovakia), Prague 1950.
- [16] Evreinoff, V. A., Notizen über Ursprung Biologie und Sorten der Mispel, Deutschen Baumschule Vol. 6, 1954, p. 260–265.
- [17] Fedorov, An. and Al., Les *Mespilus* du Caucase. Transect Armen. Branch Ac. Sc. USSR, Biol. ser., Vol. 2, 1937, p. 21–60.
- [18] Freyn, J., Verzeichniss der von P. Sintenis in Ost-Masenderan gesammelten Pflanzen — Bull. Herb. Boiss, Ser. 2, Vol. 2, No. 10, 1902, p. 833–851.
- [19] Grossheim, A. A., “Rastitelnyi pokrov Kavkaza”. (The Caucasus Plant Cover), Moskva 1948.
- [20] Grossheim, A. A., “Flora Kavkaza”. (The Caucasus Flora), Moskva-Leningrad 1952.
- [21] Halacsy, E., Conspectus florum Graecae, 1, Lipsiae 1901.
- [22] Halacsy, E., Conspectus florum Graecae, supplementum 2, Budapest 1912.
- [23] Handel-Mazzetti, H., Ergebnisse einer botanischen Reise in das Pontische Randgebirge im Sandschak Trapezunt, Ann. k.k. naturh. Hofmus. Wien Vol. 23, 1909, p. 6–212.
- [24] Hayek, A., Prodromus florum peninsulae Balcanicae, 1, Berlin-Dahlem 1927.
- [25] Hegi, G., Illustrierte Flora von Mittel-Europa, 4, 2, München 1922.
- [26] Hermann, F., Die Pflanzendecke des Strandsha-Gebirges. Feddes Report (Beih.) 87, Berlin-Dahlem 1936.



- [27] Hermann, F., Flora von Nord- und Mitteleuropa, Stuttgart 1956.
- [28] Holmboe, J., Studies of the Vegetation of Cyprus. Bergens Museums Skrifter. Ny Raekke Vol. 1, No. 2, 1914.
- [29] Jordanoff, D., Die Vegetationsverhältnisse im Bulgarischen Teile des Strandja-Gebirges., Annales de l'Univ. d. Sofia, II Fac. Physic.-Math. Livre 3 (Sc. Nat) Vol. 35, 1939, p. 1-90.
- [30] Jovanovic, B., "Dendrologia". (Dendrology), Beograd 1956.
- [31] Krause, K., "Ankaranian Floron". (The Ankara Region Flora), Ankara 1934.
- [32] Loudon, J. C., Arboretum et Fruticetum Britannicum, 2, London 1854.
- [33] Meikle, R. D., *Rosaceae* in Flora of Iraq Vol. 2, 1966, p. 102-171, Baghdad.
- [34] Oostroom, v. J. S., Flora van Nederland, Groningen 1962.
- [35] Parsa, A., Flore de l'Iran, 2, Teheran 1948.
- [36] Poyarkova, A. I., *Mespilus* in Flora USSR Vol. 9, 1939, p. 414-416, Moskva-Leningrad.
- [37] Poletiko, O. M., *Mespilus* in Trees and Shrubs of USSR, Moskva-Leningrad, Vol. 3, 1954, p. 511-514.
- [38] Popov, M. G., Wild Growing Fruit Trees and Shrubs of Asia-Media — Bull. Applied Botany, Genetics, Pl. Breeding Vol. 22, No. 3, 1928-1929, p. 241-483.
- [39] Post, E. G., Dinsmore, J. E., Flora of Syria, Palestine and Sinai, 1, Beirut 1932.
- [40] Radžabli, A. D., "Sorta mushmuly Azerbaidzhana". (Medlar Species in Azerbaijan) — Sad i Ogorod Vol. 1, 1951, p. 30-32.
- [41] Rechinger, K. H., Enumeratio Florae Constantinopolitanae. Feddes Repert. (Beih.) 98, Berlin-Dahlem 1938.
- [42] Rechinger, K. H., Ergebnisse einer botanischen Reise nach dem Iran, 1937, III Teil. Ann. Naturh. Mus. Wien Vol. 53, No. 1, 1943, p. 340-357.
- [43] Rechinger, K. H., Flora Aegaea, Wien 1943.
- [44] Schneider, C. K., Illustriertes Handbuch der Laubholzkunde, 1, Jena 1906.
- [45] Stefanoff, B., Phytogeographische Elemente in Bulgarien. Recueil d. l'Acad. Bulgare d. Sc. et d. Arts, Cl. d. Sc. Nat. et Math., 39, Sofia 1943.
- [46] Stojanoff, N., Stefanoff, B., "Flora na Balgharia". (The Bulgarian Flora), 3rd ed. Sofia 1948.
- [47] Tchihatcheff, P., Asie Mineure, 2, Paris 1860.
- [48] Wagenitz, G., Zur Kenntnis der Flora und Vegetation Anatoliens. Willdenowia Vol. 3, 2, 1963, p. 221-288.
- [49] Webb, D. A., The Flora of European Turkey, Proceedings of the Royal Irish Academy 65, Sect. B, No. 1, 1966, p. 1-100.
- [50] Vassiljev, V. F., *Mespilus* in E. V. Vulf Flora Taurica, Vol. 2, No. 2, Moskva 1960, p. 2-24.
- [51] Zohary, M., On the Geographical Structure of Iran — Bulletin of the Research Council of Israel, Sect. D, Botany, Suppl. to Vol. 11 D, 1963.
- [52] Zhukovskii, P. M., "Kulturnye rasteniya i ikh sorodichi". (Cultivated and Related Plants), Moskva 1950.

## SUMMARY

*M. germanica* belongs to those plant species, the natural range of which is extremely difficult to establish. This shrub has been known in remote antiquity, and as early as the 7th century B.C., it was cultivated for its tasty fruits. In central and southern Europe it has



long been planted, and in many places it commonly grows wild giving the impression of a native plant. Owing to this there are discrepancies in the treatment of a number of sites of its occurrence.

The author lists the opinions prevailing to date as to the natural occurrence of the medlar and its turning wild, and outlines its range on the basis of the available literature and herbarium collections. It thus appears (see map) that this range coincides almost completely with the Euxine-Hercynian floristic province. Wild medlars grow in Bulgaria in Strandža and Sakar Planina, in the European part of Turkey and probably in northeastern Greece (Thrace and Thessaly), in the Asiatic part of Turkey — northern Anatolia (Bithynia, Paphlagonia and Lazistan), on the Crimea, in the region of Novorossisk, on the Antecaucasus, Caucasus, in the Talysch mountains, in north Iran and on one site in the Kopet-Dag mountains (Turkmenia). An isolated site is known in the Turkisch Kurdistan and another in northeastern Iraq; the origin of medlar sites on Cyprus remains obscure.

On sites of natural occurrence *M. germanica* is characterized by a wide variability of generative traits (fruits). Varieties are, however, known with entire (var. *integrifolia*) and serrated (var. *serrulata*) leaves. The cultivated forms show a higher variability than the wild ones, they differ from them by more vigorous growth, absence of spines and larger fruits, reaching 5–8 cm in diameter (wild ones 1.5–3 cm). The fruits are edible, but only after exposure to frost or longer storage. The fruits can be used for jams and jellies and for preparing a beverage resembling cider.