

Rhamnus species

Buckthorn

Introduction

The genus *Rhamnus* contains approximately 200 species occurring primarily in temperate to tropical regions of eastern Asia and North America. Fifty eight species and 14 varieties occur nationwide in China. The largest populations occur in southwestern and southern China^[3].

I. *Rhamnus cathartica*

Common buckthorn

Taxonomy

Order: Rhamnales

Family: Rhamnaceae

Genus: *Rhamnus* L.

Subgenus: *Frangula* (Mill.) S. F. Gray

Species: *Rhamnus cathartica* L.

Description

Rhamnus cathartica is a shrub or small tree 5-8 m in height. The branchlets are purplish red or silvery gray, opposite or nearly so along the main stems, with terminal spines. Scales of terminal buds are marginally hairy. Leaves are papery, nearly opposite, alternate, or clustered in the twigs. The leaf blade is elliptic, ovoid elliptic, or ovate, 3-6.5 cm long and 1.5-3 cm wide, with a shortly acuminate, acute or obtuse apex, rounded or broadly cuneate base and densely crenate serrate margin. Both sides of the leaf are glabrous. There are 3-4 pairs of lateral veins, the proximal one of which is stout, and often conspicuously divaricated. The petiole is 1-2.7 cm long, grooved, and



pilose or nearly glabrous. The flowers are unisexual, dioecious, 4-merous and usually grow in clusters of 10 on the twigs or from the leaf axil on the lower part of the long branches. The pedicel is 2-4 mm long. Male flowers have petals, but the stamens are degenerate and small. The ovary of female flowers has 3 loculi, with 1 ovule each. The style is long and 3-lobed. Fruits are black globular drupes, with 3 internal pyrenes with persistent calyx-tubes at the base. The fruit's pedicel is 5-8 mm long. The seeds are shortly grooved dorsally, and sutured adaxially. Flowers appear May through June, and fruits July through September^[3].

Habitat and Distribution

R. cathartica occurs in valleys and hillside thickets at elevations of 1200-1400 m in northern Xinjiang^[3].

Economic Importance

The fruits of *R. cathartica* contain catharine, a laxative substance which used medicinally^[3].

II. *Rhamnus frangula*

Glossy buckthorn

Taxonomy

Order: Rhamnales

Family: Rhamnaceae

Genus: *Rhamnus* L.

Subgenus: *Rhamnus*

Section: *Rhamnus*

Species: *Rhamnus frangula* L.



Description

Rhamnus frangula is a shrubby or small woody tree up to 7 m in height. The branchlets are purplish brown, sparsely pubescent. The leaves are papery, broadly elliptic, oblong, or occasionally obovate, 4-11 cm long and 2.5-6 cm wide, apiculate or round in the apex, broadly cuneate or nearly round at base, with entire margins. The upside of the leaves is dark green, glabrous, while underside is light green, pilose along the midrib, with 6-10 lateral veins. The petiole is about 1-1.9 cm long, and glabrescently pubescent. Growing solitary or in clusters of no less than 2 in the leaf axil, flowers are bisexual, 5-merous, glabrous, with pedicel about

5-10 mm long. Sepals have beak like outgrowth in the apex. Petals are rounded, slightly lobed apically. Floral disc is thin and cup-shaped. Ovary is globose, 2-celled with 1 ovule for each. Fruits are globose drupes that are 6-8 mm in diameter, red at maturity, but turning purplish-black. Fruit pedicels are 7-10 mm long. Flowers appears from April through July, and fruits June through September^[3].

Habitat and Distribution

R. frangula occurs in forest margins, along riverbanks and lakesides, in northern Xinjiang province^[3].

Economic Importance

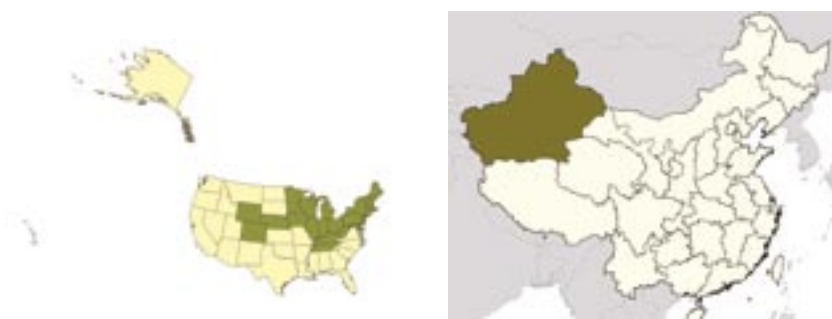
The bark of *R. frangula* is also medically useful. The bark and immature fruit are sources of dye. The wood is used to make gunpowder^[3].

Related Species

In China, *R. davurica* P. S. Pallas is the most commonly known member of the genus *Rhamnus*. It occurs in the forest on slopes, in thickets or in forest margins, and wet areas near ditches at elevations under 1800 m in Hebei, Heilongjiang, Jilin, Liaoning, and Shanxi provinces^[3].

Natural Enemies of *Rhamnus*

Fifteen species of fungi and 20 arthropods



have been recorded for members of the genus *Rhamnus*, but none of them are known to attack *R. cathartica* or *R. frangula*

Species of *Rhamnus* in China

Scientific Names	Scientific Names
<i>R. arguta</i> Maximovicz.	<i>R. leptacantha</i> C. K. Schneider
<i>R. aurea</i> Heppler	<i>R. leptophylla</i> C. K. Schneider
<i>R. bodinieri</i> H. Leveille	<i>R. liukuensis</i> (Wilson) Koidzumi
<i>R. brachypoda</i> C. Y. Wu ex Y. L. Chen	<i>R. longipes</i> Merrill et Chun
<i>R. bungeana</i> J. Vassiew.	<i>R. maximovicziana</i> J. Vassilev.
<i>R. cathartica</i> Linneus	<i>R. minuta</i> Grubav
<i>R. coriophylla</i> Handel-Mazzetti	<i>R. nakaharai</i> (Hayata) Hayata
<i>R. crenata</i> S. A. Siebold et Zuccarinii	<i>R. napalensis</i> (Wall.) Lawson
<i>R. davurica</i> P. S. Pallas	<i>R. nigricans</i> Handel-Mazzetti
<i>R. diamantiaca</i> T. Nakai	<i>R. parvifolia</i> Bung
<i>R. dumetorum</i> C. K. Schneider	<i>R. procumbens</i> Edgeworth
<i>R. erythroxyton</i> Pallas	<i>R. prostrata</i> H. A. Jacques
<i>R. esquirolii</i> H. Leveille	<i>R. rhododendriphylla</i> Y. L. Chen
<i>R. flavescens</i> Y. L. Chen et P. K. Chou	<i>R. rosthornii</i> E. Pritzen

Scientific Names	Scientific Names
<i>R. formossana</i> Matsumura	<i>R. rugulose</i> Hemsley
<i>R. frangula</i> Linneaus	<i>R. sargentiana</i> Schneider
<i>R. fulvo-tincta</i> Metcalf.	<i>R. schneideri</i> H. Leveille. et Vaniot Fedde
<i>R. gilgiana</i> Hepper	<i>R. songorica</i> Gontsch
<i>R. globosa</i> Bunge	<i>R. subapetala</i> E. D. Merrill
<i>R. grandiflora</i> C. Y. Wu ex Y. L. Chen	<i>R. tangutica</i> J. Vassilev
<i>R. hainanensis</i> Merrill et Chun	<i>R. tzetweiensis</i> Y. L. Chen et P. K. ChouBull.
<i>R. hemsleyana</i> C. K. Schneider	<i>R. ussuriensis</i> J. Vassilev.
<i>R. henryi</i> C. K. Schneider	<i>R. utilis</i> J. Decaisrme
<i>R. heterophylla</i> Oliver	<i>R. velutina</i> Anthony
<i>R. hupehensis</i> C. K. Schneider	<i>R. virgata</i> Roxburg.
<i>R. iteinophylla</i> C. K. Schneider	<i>R. wilsonii</i> C. K. Schneider
<i>R. koraiensis</i> C. K. Schneider	<i>R. wumingensis</i> Y. L. Chen et P. K. Chou
<i>R. kwangsiensis</i> Y. L. Chen et P. K. Chou	<i>R. xizangensis</i> Y. L. Chen et P. K. Chou
<i>R. lamprophylla</i> C. K. Schneider	

Fungi

Phylum	Family	Species	H. R.	Ref.
Ascomycota	Erysiphaceae	<i>Erysiphe friesii</i> (Lév.) U. Braun & S. Takam	mo	[4] ^I
			po	[6] ^I
	Meliolaceae	<i>Microsphaera penicillata</i> (Wallr.) Lév.	po	[4] ^{II}
Basidiomycota	Pucciniaceae	<i>Puccinia coronata</i> Corda	po	[14]
			po	[4]
		<i>Puccinia poae-pratensis</i> Miura	po	[4]
Anamorphic <i>Gibberella</i>		<i>Fusisporium bacilligerum</i> Berk. & Broome	mo	[4] ^{III}
Anamorphic <i>Guignardia</i>		<i>Phyllosticta rhamnicola</i> Desm.	mo	[4]
Anamorphic Leptosphaeria		<i>Coniothyrium dumei</i> Briosi & Cavara	mo	[4]
		<i>Coniothyrium rhamni</i> Miyake	oo	[4]
Anamorphic <i>Mycosphaerella</i>		<i>Cercospora rhamni</i> Fuckel	mo	[4]
			mo	[5] ^{IV}
		<i>Pseudocercospora bacilligera</i> (Berk. & Broome) Y.L. Guo & X.J. Liu	oo	[11]
		<i>Pseudocercospora rhamnaceicola</i> Goh & W.H. Hsieh	po	[11]
		<i>Septoria frangulae</i> Guépin	mo	[4]
		<i>Septoria rhamni-catharticae</i> Ces.	mo	[1]
Anamorphic Mycosphaerellaceae		<i>Ascochyta rhamni</i> W.B. Cooke & C.G. Shaw	mo	[4]
Anamorphic Uredinales		<i>Aecidium alaterni</i> Maire	oo	[4]

^IRecorded as *Microsphaera friesii* Lév.

^{II}Recorded as *Microsphaera alni* (Wallr.) Salm.

^{III}Recorded as *Cercospora bacilligera* (Berk. & Broome) Wollenw.

^{IV}Regarded as *Passalora rhamni* (Fuckel) U. Braun

Arthropods

Order	Family	Species	H. R.	Ref
Homoptera	Aphididae	<i>Aphis glycines</i> (Matsumura)	po	[17]
		<i>Aphis gossypii</i> Glover	po	[17]
		<i>Aphis rhamni</i> Boyer de Fonscolombe	mo	[10]
		<i>Aphis utilis</i> Zhang	mo	[17]
	Psyllidae	<i>Cacopsylla rhamnae</i> Li & Sun	mo	[12]
	Triozidae	<i>Eubactericera curvata</i> Li & Sun	mo	[9]
Lepidoptera	Geometridae	<i>Acasis viretata</i> (Hübner)	po	[16]
			po	[13] ^I
		<i>Ophthalmodes irrorataria</i> Bremer & Grey	po	[15]
		<i>Philereme transversata</i> Hüfnagel	mo	[16]
			oo	[13]
	Lycaenidae	<i>Megisba malaya sikkima</i> Moore	po	[18]
		<i>Rapala caerulea</i> (Bremer & Grey)	po	[18]
		<i>Satyrium iyonis</i> (Oxta & Kusunoki)	po	[18]
			po	[18]
		<i>Satyrium spini</i> (Denis & Schiffermüller)	oo	[18]
	Lymantriidae	<i>Teia ericae</i> Germar	po	[7] ^{II}
	Noctuidae	<i>Cymatophoropsis trimaculata</i> (Bremer)	mo	[2]
			po	[7]
	Pieridae	<i>Eurema hecabe hobsoni</i> (Butler)	po	[18]
		<i>Gonepteryx amintha</i> Blanchard	mo	[18]
		<i>Gonepteryx amintha formosana</i> Fruhstorfer	po	[18]
			po	[18]
<i>Gonepteryx rhamni</i> (L.)		po	[18]	
Thyrididae	<i>Rhodoneura lobulatus</i> (Moore)	mo	[19]	

^IRecorded as *Ophthalmitis irrorataria* (Bremer & Grey)

^{II}Recorded as *Orgyia ericae* Gremer