SolanaceaeCNightshade family

Lycium L.

wolfberry

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Other common names. matrimonyvine, desertthorn, boxthorn, squawthorn.

Growth habit, occurrence, and use. The wolfberriesC*Lycium* L.Cinclude about 100 species of shrubs native to the temperate and subtropical regions of both hemispheres (Rehder 1940). Deciduous or evergreen as well as thorn-bearing and unarmed forms occur in the genus. Species of wolfberry native to the United States tend to be desert shrubs (Benson and Darrow 1954; Wallace and others 1980; Webb and others 1987). Wolfberries are used as ornamental shrubs because of their showy berries, but they also provide wildlife habitat and watershed protection. At least 1 species is grown for shelter hedges. Two introduced speciesCChinese wolfberry and matrimonyvineChave been grown horticulturally for the longest time and most extensively. It is likely that geographic races have developed within widely distributed wolfberry species. Some botanical varieties may be geographical races. Hitchcock (1932) mentions apparent racial development in Anderson wolfberry. Natural hybrids occur where species ranges overlap, as is the case with Anderson wolfberry and Torrey wolfberry (*L. torreyi* Gray) and Rich wolfberry (Hitchcock 1932). Information on 5 species (table 1) is included here.

Flowering and fruiting. The perfect flowers, grading by species from white to lavender, usually bloom in the summer (table 2). They are followed by bright red (rarely yellow or black) berries (table 3), each with few to many seeds (figures 1 and 2). Good seed crops are borne almost every year by matrimonyvine (NBV 1946) and probably by other wolfberry species. Arizona desertthorn produces seed abundantly (Van Dersal 1938).

Collection of fruits; extraction and storage of seeds. Ripe berries may be picked from the bushes in the fall. The berries are soft and may be pulped by forcing them through a screen and floating out the pulp (Rudolf 1974). For extraction on a larger scale, berries may be fermented, mashed in water, and then run through a hammermill equipped with screens of suitable sizes (Glazebrook 1941). After extraction, the seeds should be dried and stored in sealed containers at 5 °C (NBV 1946; Rudolf 1974), or stratified in moist sand (Glazebrook 1941; NBV 1946). Stratified seed of matrimonyvine will maintain good viability for 6 months (NBV 1946), but there is no information on long-term storage of dry seeds. They appear to be orthodox, however, so storage should not be a problem. Seed data are listed in table 4.

Germination. Dormancy in wolfberry seeds is variable. Seed samples of Anderson wolfberry and Arizona desertthorn germinated well without pretreatment. They had germination of

68 and 94% (Swingle 1939). Germination of matrimonyvine seeds, however, was hastened and improved by stratification in moist sand for 60 to 120 days at 5 °C. After cold stratification, the average germination capacity for 19 samples was 74% (Glazebrook 1941; NBV 1946; Rudolf 1974). These tests were run in sand flats for 30 to 40 days at diurnally alternating temperatures of 30 to 20 °C. Germination after 18 days was 54%. Seeds of Rich wolfberry probably would benefit from similar pretreatment, because germination was only 11% without pretreatment (Mirov and Kraebel 1939).

Nursery practice. One recommendation is to sow the seeds in the fall as soon as the fruits ripen (Laurie and Chadwick 1934). Another suggestion is to sow stratified seed in the spring and cover them lightly by sifting-on about 6 mm (3 in) of soil (NBV 1946). Tree percent has been from 10 to 15 for Chinese wolfberry and matrimonyvine (Swingle 1939). Two-year-old seedlings may be outplanted.

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Figure 1C*Lycium barbatum,* matrimonyvine: cleaned seed, × 12.

Figure 2C*Lycium barbatum,* matrimonyvine: longitudinal section through a seed, × 18.

Table 1C*Lycium*, wolfberry: nomenclature and occurrence

Scientific name & synonyms*	Common name	Occurrence
***L. andersonii* Gray**	**Anderson wolfberry,** Anderson desert thorn, water jacket, squawberry	New Mexico to California, N to Colorado, Nevada, & Utah, & in Mexico (Sinaloa & Sonora) on gravelly washes, & sandy or alkali flats up to 1,524 m
***L. barbarum* L.** *L. halimifolium* P. Mill.	**matrimonyvine,** boxthorn, European desert thorn	China to SE Europe; commonly cultivated in much of the US, West Indies, & Mexico
***L. chinense* P. Mill.** matrimony-	**Chinese wolfberry**, vine, Chinese desertthorn	In thickets along riverbanks in Japan, Korea, Chinese Manchuria, China, Ryukyu Islands, & Formosa
***L. exsertum* Gray** *L. fremontii* var. *bigelovii* Gray	**Arizona desertthorn**	Arizona & New Mexico & NW Mexico up to 1,219 m
***L. richii* Gray** *L. palmeri* Gray *L. pringlei* Gray	**Rich wolfberry,** Baja desertthorn	S California & Sonora, Sinaloa, & Baja California in Mexico

* See Chiang (1983) for nomenclatural history.

Table 2C*Lycium*, wolfberry: phenology of flowering and fruiting

Species	Location	Flowering dates	Fruit ripening dates
L. andersonii	W US	AprBJune	C
	SW US	JanBMay	C
	California	NovBApr	C
	Arizona	FebBApr	AugBSept
L. barbatum	Holland, NE US	JuneBSept	AugBOct
L. chinense	NE US	JuneBSept	AugBOct
	Japan	AugBNov	C
L. exsertum	Arizona	JanBFeb*	C
	L. richii	California	MayBSept
		JuneBOct	

Sources: Bailey (1939), Kearney and Peebles (1942), McMinn (1951), Mirov and Kraebel (1939), NBV (1946), Ohwi (1965), Rehder (1940), Van Dersal (1938), Vines (1960), Wyman (1947).

* Most abundant then, but flowers throughout the year (Kearney and Peebles 1942).

Table 3C*Lycium*,wolfberry: height, length of cultivation, flower color, and fruit characteristics

Species	Height at maturity (m)	Year first cultivated	Flower color	Ripe fruit color	Seeds/fruit
L. andersonii	0.3B3	Before 1935	Light purple, lavender,	Red or white	Very many
L. barbatum	1B6	Long cultivated	Dull, lilac-purple	Scarlet to orange-red sometimes yellow	3B20
L. chinense	1B2*	Before 1709	Purple	Scarlet to orange-red	C
L. exsertum	1B4	Before 1935	Whitish to purple	Orange or red	20B30
L. richii	1B4	Before 1935	Lilac	Bright red	30B50

Sources: Bailey (1939), Benson and Darrow (1954), Hitchcock (1932), Kearney and Peebles (1942), McMinn (1951), Rehder (1940), Standley (1924), Vines (1960).

* Up to 4 m (13 ft) long as a prostrate rambler.

Table 4C*Lycium*, wolfberry: seed data

Species	Seed soundness (%)	Cleaned seeds/weight Range /kg	Range /lb	Average /kg	Average /lb	Samples
L. chinense	99	C	C	377,000	171,000	1
*L. barbatum**	98	555,600B586,400	252,000B266,000	573,000	260,000	3
L. richii	C	C	C	3,022,600	1,371,000	1

Sources: Glazebrook (1941), Mirov and Kraebel (1939), Swingle (1939).

* Seed purity was 92% in one sample (Rudolf 1974).