

Carduus nutans

Musk thistle

Introduction

The genus *Carduus*, comprised of approximately 95 species, is distributed in Eurasia and northern and tropical Africa. There are only three species native to China^[104].

Species of *Carduus* in China

Scientific Name
<i>C. acanthoides</i> L.
<i>C. crispus</i> L.
<i>C. nutans</i> L.

Taxonomy

Family: Compositae
(Asteraceae)

Genus: *Carduus* L

Description

Carduus nutans is a biennial or perennial herb 20-100 cm tall. Stems are grayish white, ribbed, usually multi-branched, rarely unbranched, sparsely arachnoid, and apically tomentose. Leaves of the lower and middle parts are ovate to lance-shaped, 10-40 cm long and 3-10 cm wide, pinnatifid or pinnatifid with five to seven pairs of lateral lobes, which are obliquely triangular or triangular-ovate, and at the tip of each lobe is a light yellow or brown spine that is about 4-6 mm long. The upper leaves gradually decrease in size upward, and are lobed pinnately or entire, bearing spinules shorter than those of the lower and middle leaves. Inflorescence consists of 4-6 solitary heads at the end of the branches. The involucre is bell-shaped or broadly so and 4-7 cm in diameter. Bracts are multi-layered and imbricate. The outermost bract is triangular, 1.4-1.5 cm long and 4-5 mm wide; innermost bract is broadly linear to linear-lanceolate, 2-2.2 cm long and 2-3 mm wide, with the midrib raised and elongated apically into a spine. Middle and inner bracts



Carduus nutans flower. (Photo by Norman G. Flaigg, LBJWC.)

are triangular-lanceolate, elliptic, or elliptic-lanceolate, 1.5-2 cm long and 5 mm wide. Corollas are purple red and about 2.5 cm long. Fruits are gray-yellow achenes about 3.5 mm long, with many thin grooves that are pale brown and wrinkled. Pappus bristles are white, scabrid, and unequal. Flowers and fruits appear from June to September^[104].

Habitat and Distribution

C. nutans occurs in valleys, croplands and grasslands at elevations of 540–2300 m in the Tian Shan mountains and Dzungarian Basin of Xinjiang^{[20][104]}.

Economic Importance

C. nutans is nectariferous.

Related Species

Carduus crispus L. is a common weed throughout China occurring on grassland slopes, farmlands, wastelands, riversides and forests at elevations of 400–3,600 m. *Carduus acanthoides* L. is also distributed throughout China and occurs on hilly slopes, grasslands, forest edges, thickets, valleys, lakesides, and farmlands at elevations of 260–3,500 m^[104].

Natural Enemies of *Carduus*

Of the four fungi found on members of the genus *Carduus*, two are reported to infect musk thistle, one rust, *Puccinia galatica* is host specific. Seven arthropod species from five families are associated



with the members of the genus

Fungi

Phylum	Family	Species	H. R.	Ref.
Ascomycota	Erysiphaceae	<i>Erysiphe cichoracearum</i> DC.	po	22
Basidiomycota	Incertae sedis	<i>Aecidium cardui</i> Syd. & P. Syd.	oo	23
	Pucciniaceae	<i>Puccinia carduorum</i> Jacky	o	23
		<i>Puccinia galatica</i> Syd.	m	23

Arthropods

Order	Family	Species	H. R.	Ref.
Coleoptera	Hispidae	<i>Cassida rubiginosa rugo-sopunctata</i> Motschulsky	po	140
Hemiptera	Tingidae	<i>Tringis ampliata</i> (Herrich-Schaeffer)	po	193
Homoptera	Aphididae	<i>Capitophorus carduinus</i> (Walker)	po	189
Lepidoptera	Noctuidae	<i>Apamea vetusta</i> (Hübner)	po	13
		<i>Orthosia gracilis</i> (Schiffermüller)	po	12
	Nymphalidae	<i>Vanessa cardui</i> (Linnaeus)	po	203
	Tortricidae	<i>Aethes cnicana</i> Westwood	po	66