Characteristics of the mustard family

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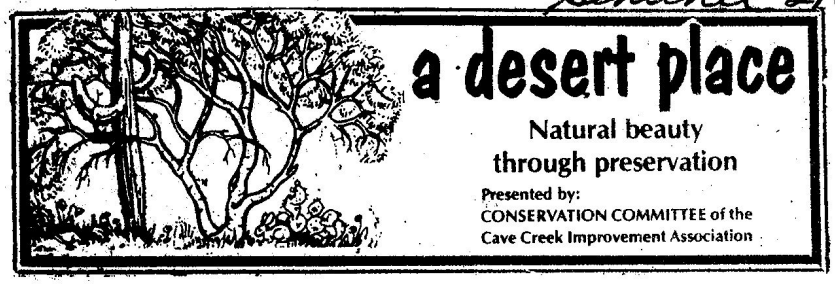

By DAVID LUTZ

The mustard family *(Cruciferae)* is the fifth largest in Arizona with 44 genera and about 123 species. In 1960 there were 105 known species in Arizona and the exact number frequently changes due to new introductions and discoveries, and taxonomic reclassification.

Mustard *(Brassica spp.)* is one of the most commonly recognized products from this family but it also gives us cabbage, cauliflower, and turnip (all *Brassica spp.)* along with radish and cress.

Water cress *(Nasturtium officinale)* is fairly common in springs and slow moving water throughout the state and rock cress *(Arabis spp.)* is not uncommon on dryer ground, Arabis perennans being the most widely distributed.

Also growing uncultivated in Arizona are winter cress *(Barbarea spp.)*, bitter cress *(Cardamine spp.)*, hoary cress (*Cardaria draba*, also called white top), wart cress *(Coronopus didymus)*, yellow cress *(Rorippa spp.)*, and penny cress *(Thlaspi spp.)*.

Some of the flowers in the mustard family that are generally recognized are wallflower (*Erysimum spp.)*, pepper grass *(Lepidium spp.)*, bladder pod (*Lesquerella spp.*), and desert plume or prince's plume *(Stanleya spp.)*. Some species now growing wild are fairly recent introductions to Arizona, the garden radish *(Raphanus sativus)* being one of the latest to escape.

With *Cruciferae*, knowing a few common characteristics can help to determine if an unknown plant is part of this family. Having both flowers and fruits is a definite advantage in identification, and fortunately, plants in *Cruciferae* may have both at the same time.

Otherwise, one or the other may be sufficient but in the classification of plants, there are few rules that do not have exceptions, and characteristics frequently overlap.

Most mustard family plants are herbs but they may occasionally be woody at the base (suffrutescent). The leaves are alternate along the stem, and/or occasionally at the base of the plant, and are usually simple. Water cress, yellow cress and tansy mustard *(Descurainia spp.)* may have compound leaves.

The flowers are bunched in loose or compact groups, botanically defined as racemes, flowers spread along the axis with the youngest at the top, or corymbs racemes with the lower flower stalks elongated so that they reach the height of the upper ones.

They generally have four sepals and four separate petals which are symmetrically arranged in a cross shape, thus the family name of *Cruciferae*. Petals are frequently yellow or white but may also have green, orange, maroon, or purple, or be entirely pink, lilac, or purple.

The ovary is superior, meaning the petals are attached below the seed producing part of the flower. If the flower is large enough to see inside the petals, there will be one central style capped by a single stigma, surrounded by six distict stamens all bearing anthers.

The fruits are a capsule, termed a silique of it's much longer than wide and a silicle if it's shorter. Most of them have a partition, septum, which divides the fruit in two halves from the top, apex, to the base where it is joined to the plant.

Two interesting types of silicles belong to spectacle pod *(Dithyrea sp. and Dimorphocarpa spp.)* and lace pod *(Thysanocarpus spp.)*. In the former, the partition is greatly compressed so each half forms a circular structure and the fruit looks like a pair of spectacles. With the latter there is a thin perforated margin around the silicle so it appears lace-like.

Native plants of the mustard family were used by American Indians for food and medicine.

However, some species are poisonous and NO plant should ever be eaten unless you are certain of its identity and familiar with the properites of the plant.