

# Those Big Words: Hairs

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Botanists have a language all their own, and it may be that having to learn and understand the hundreds of specialized words turns plant lovers away from the study of botany. Yet, if we want to learn how to identify plants, it is helpful to learn something about a plant's characteristics. To do so we need to understand the language. Let's look at just one characteristic of plants: hairs.

Many plants have hairs on various parts: on their young branches, leaves, leaf stems, buds, flowers, flower stems, seed capsules, and other parts. All of us understand *hairy* and *bristled* or *bristly*. Most of us know what *downy* means, covered with fine short hairs. We understand long hairs, short hairs, stiff hairs, weak hairs, erect hairs, and hairs laying flat. Botany has technical words for all these conditions, but not all authors use the same definition.

## Trichomes vs. Hairs

To some botanical authors, trichomes and hairs are synonymous, an epidermal outgrowth including bristles, prickles, and scales. Others separate the two and limit hairs to a special type of trichome: an elongate, single-celled or multiple-celled outgrowth of the epidermis, but not a bristle, prickle, or scale.

## Indumentum

Indumentum has come to be the collective term for the presence of trichomes. It is the covering of trichomes, derived from Latin meaning garment.

## Soft Hairs

Plant parts are often covered with fine hairs. If the hairs are short and soft the condition is not only called *downy* but is sometimes called *pubescent* by botanists. If the soft hairs are really minute, they are *puberulose* or *puberulent*. If there are many fine pubescent hairs, giving a gray or white, even frosted appearance, they are hoary or canescent. Look for these soft hairs on the winter flower buds, branchlets, and undersides of the leaves on *Rhododendron canescens*. Occasionally, botanists will call this species the hoary azalea.

When the pubescence becomes very dense, sort of woolly looking, it is called *tomentose*. If the hairs are long and soft, they are now *pilose* or *villous*. Pilose or villous hairs are not matted like tomentose hairs. Remember, if they are short and soft they are pubescent.

## Stiff Hairs

Stiff hairs have their words too. Having bristly hair is called *setose*. Long, erect, rigid hairs result in a *hispid* condition. If the stiff hairs are short, it is *hispidulous*. Another word for having coarse longish hairs is *hirsute*. If the stiff hairs are not erect but lay flat on the surface, this condition is not hispid but *strigose*. These



*R. canescens* winter floral bud with pubescent bud scales, similar to a hoary frost coating on a cold January morning.

hairs are *appressed* or *adpressed*. Interestingly, some azaleas such as forms of *R. viscosum* and *R. serrulatum* have branchlets with fairly dense curly, somewhat woolly hairs that fall between stiff and soft hairs, like a wire-haired fox terrier but on a smaller scale. What would be the description for these hairs?

## Hairlessness

Plants parts can have both soft and stiff hairs mingled together. And some plant parts are without hairs. Without hairs is a *glabrous* condition. New growth on *R. arborescens* and *R. prunifolium* is glabrous. If a new leaf is somewhat pubescent but becomes glabrous as it ages, it is glabrescent.

Occasionally, a stem or underside of a leaf will have a whitish, waxy substance. This is not hair and will rub off with a fingernail. It can give leaves an overall bluish appearance. This is a *glaucous* condition, not to be confused with glabrous. A slightly glaucous condition is called *glaucouscent*.



Cilia along top edge of *R. calendulaceum* winter floral bud. Wooly plant stem.



*R. austrinum* with long and short glandular-setose hairs on new growth and wooly hair on older growth.



Glabrous new growth on *R. prunifolium*.



*R. periclymenoides* corollas with eglandular- (somewhat) setose hairs on flower tube and eglandular- (somewhat) strigose hairs on pedicils.



*R. calendulaceum* seed pod with eglandular-setose hairs.

There are even more words. Sometimes hairs have small round glands at the top. These *glandular* hairs can be long stalked or short stalked. Hairs without glands are said to be eglandular. *Ciliate*, for one more example, means having hairs along the edge, such as a leaf or a bud scale.

I doubt that even botany students can accurately define the sometimes subtle differences among all these various conditions of hairiness, and to make matters worse, botanical authors modify these hair descriptors

<b>Hair Glossary</b>	
appressed/adpressed	lying flat; (hairs) held close to a leaf or stem and parallel to its surface, but not fused or adhering to it
bristly	having stiff strong hairs (bristles)
canescent	with gray-white pubescence; hoary
ciliate	fringed with hairs along the margin, resembling an eyelash
downy	covered with fine hairs
eglandular	without glands; opposite is glandular
glabrous	not hairy; having no hairs
glabrescent	becoming nearly glabrous with age
glandular	having glands (a secretory organ) that are often sticky; opposite is eglandular
glaucous	covered with a whitish substance that rubs off
glaucouscent	slightly glaucous
hirsute	having rough or coarse longish hairs
hispid	having long, erect, rigid hairs, harsh to the touch
hispidulous	minutely hispid; covered with stiff, short hairs
hoary	covered with a grayish or whitish layer of very short closely interwoven hairs, giving a frosted appearance
pilose	covered with soft, weak, thin, long, and separated hairs
puberulose	covered somewhat densely with very short, soft, erect hairs
puberulent	covered with minute, soft, erect hairs
pubescent	covered with soft, short, weak, erect hairs; downy
setose	with bristles, erect, not appressed
strigose	with sharp appressed, rigid, bristle-like, straight hairs; the appressed equivalent of hispid
tomentose	densely covered with matted, short hairs; somewhat subjective, grades into woolly, villous, and pubescent
villous	covered with long, soft, weak hairs, somewhat dense; shaggy with soft hairs; straight, bent, or curly but not matted
woolly	very densely covered with long, soft, matted or intertwined hairs, like sheep's wool

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with words such as “frequently,” “slightly,” “some-  
what,” “nearly,” “more or less,” “sparingly,” “usually,”  
“almost,” and “loosely.”

#### **About the Author**

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