

# Difference Between Monoecious and Dioecious

[www.differencebetween.com](http://www.differencebetween.com)

## Key Difference - Monoecious vs Dioecious

The terms monoecious and dioecious are used to explain some reproductive behavior of plants. In some plant species, both types of male and female reproductive organs are present in the same plant; however, in some plants, male reproductive systems, and female reproductive systems are localized in separate individuals. The key difference between monoecious and dioecious is that **monoecious describes the state of having both male and female reproductive systems in the same plant or animal** while **dioecious describes the state of having male and female reproductive systems in separate plants or animals**. The meanings of the two words can be easily understood when the meanings of Latin prefixes ‘di’ and ‘mono’ are understood. Di refers ‘two’ and mono refers to ‘same’ or ‘one’. These two words are used primarily to describe [bryophytes](#) sexuality in which the [gametophyte](#) is the dominant generation. They are also used to describe [tracheophytes](#), which have a sporophyte dominant generation.

## What is Monoecious?

Flower is the main reproductive structure of many plants. It contains both male and female reproductive parts. Male reproductive system of a flower is known as stamen while the female part is called [pistil](#). When a flower contains both stamens and pistils, the flower is said to be perfect. The plant which contains perfect flowers is known as a monoecious plant because it has both male and female reproductive organs in the same plant. When two types of the reproductive parts are found in the same individual, the necessity of finding a pollinator is avoided. Hence, [sexual reproduction](#) easily occurs in monoecious plants. This is a type of [inbreeding](#). This reduces the genetic variation in the new individuals which is often a result of sexual reproduction.

Some plants have imperfect flowers. Imperfect flowers have either male part or female part. They possess either staminate flowers or pistillate flowers. However, if staminate flowers and pistillate flowers are found in the same plant, the plant is said to be monoecious.

Plant growers prefer to use monoecious plants for landscaping etc. since they do not have to worry about supplying pollinators.



Figure 01: Monoecious Tung tree

## What is Dioecious?

When a plant bears either staminate flowers or pistillate flowers, the plant is known as a dioecious plant. That particular plant possesses only one type of reproductive part. If it has a male reproductive part, it is considered as a male individual and if it has only a female reproductive part, it is considered as a female individual. You can find only one type of flowers from a dioecious plant. Male and female reproductive organs are located in separate plants. Dioecious plants require efficient pollinators for sexual reproduction. If not effective pollination mechanisms are required to fulfill their reproduction. Hence, dioecious plants show comparatively high [genetic variation](#) within their populations. Genetic materials of two separate individuals are mixed when dioecious plants reproduce sexually.



Figure 02: Dioecious plant

## What is the difference between Monoecious and Dioecious?

Monoecious vs Dioecious	
Plants or animals which possess both male and female reproductive organs on the same plant or animal are known as monoecious.	Plants or animals which possess either male reproductive organ or female reproductive organ are known as dioecious.
Flower Type	
Monoecious plants bear perfect flowers or both types of imperfect flowers in the same individual.	Dioecious plants bear one type of imperfect flower in one individual.
Need of a Pollinator	
Monoecious plant does not need an external pollinator; it may pollinate itself.	Dioecious plants need a pollinator.

Genetic Mixing	
Sexual reproduction of monoecious plants can lead to inbreeding.	Dioecious plants exchange genetic material with other organisms during the sexual reproduction.
Genetic Variation	
Genetic variation within populations is reduced in monoecious plants.	Genetic variation within populations is greater in dioecious plants.

## Summary - Monoecious vs Dioecious

Monoecious and dioecious terms are used largely but not exclusively in relation to bryophytes to explain their sexual reproduction. Bryophytes have a prominent and dominant gametophyte generation. In monoecious plants, both male and female gametes are produced since they contain both types of reproductive organs. In dioecious plants, either male or female reproductive organs are present. This is the main difference between monoecious and dioecious.

### References

1. "Monoicous." Wikipedia. Wikimedia Foundation, 06 Apr. 2017. Web. [Available here](#). 04 June 2017.
2. "Botanical Terminology: Flowers, Houses and Sexual Reproduction." Botanical Terminology: Flowers, Houses and Sexual Reproduction | Horticulture and Home Pest News. N.p., n.d. Web. [Available here](#). 04 June 2017.

### Image Courtesy:

1. "Monoecious Tung tree (*Vernicia montana*)" by Tatters ([CC BY 2.0](#)) via [Flickr](#)
2. "Cycas circinalis" ([CC BY-SA 3.0](#)) via [Commons Wikimedia](#)

## How to Cite this Article?

**APA:** Difference Between Monoecious and Dioecious. (2017, June 10). Retrieved (date), from <http://www.differencebetween.com/difference-between-monoecious-and-vs-dioecious/>

**MLA:** " Difference Between Monoecious and Dioecious." Difference Between.Com. 10 June 2017. Web.

**Chicago:** " Difference Between Monoecious and Dioecious." Difference Between.Com. <http://www.differencebetween.com/difference-between-monoecious-and-vs-dioecious/> (accessed [date]).



Copyright © 2010-2017 Difference Between. All rights reserved.