

# Importance of Bryophytes

# *Importance's of bryophytes*

Ecological  
importance's

Economical  
importance's

# Types of Bryophytes



mosses



liverwort



hornwort

## Economical Importance's of bryophytes

Source of fuel

***Horticulture,***

Preservative  
agent

Household Uses

House  
Construction

***pharmaceutical  
industry***

Moss industry

# Bryophytes as Fuel

- Liverworts and mosses have long been tried and used as a fuel in developed countries like Finland, Sweden, Ireland, West Germany, Poland and Soviet Union.
- Peat a brown, soil-like material characteristic of boggy, acid ground, consisting of partly decomposed vegetable matter.
- Peat is suitable for production of low and intermediate BTU gas as well as hydrogen, ethylene, natural gas, methanol and Fisher Tropsch gasoline.
- Peat mosses are best suited for the production of methane, and peat is likely to become an important source of fuel for production of heat, methane, or electricity in the future.





## Horticultural Uses

- There is a long tradition of use of bryophytes in horticulture as soil additives, because of their high water holding capacity and to air. Peat is an important soil conditioner and is commonly used for agricultural and horticultural purposes around the world.



## Bryophytes as ornamental plant

- Bryophytes have also been used for green house crops, potted ornamental plants and seedlings, and in garden soil.



## *As preservative agent*

**Bryophytes have excellent power to absorb moisture and can act as a good preservative agent . They not only help to prevent food but also help to preserve death bodies.**





## Moss industry

- Moss industries in France manufacture moss carpets in various sizes.
- They are easy to fix along the
- roads, lawns, play grounds, etc.
- In Sri Lanka, a wide range of eco-friendly products such as coir pots, coir fiber pith (coco - peat), moss sticks, hanging wire baskets and basket liners are made using bryophytes.



## House Construction

- These tiny plants are used in the construction of houses and their furnishings.
- At Kapkot in the Himalayas, villagers use moss mats with shrubs, grasses, and bamboo to make a pharki, a kind of door placed at the openings of their temporary huts. Sphagnumpeat, peatcrete and peatwood are the new material use for making houses ,they are low cost and easy to transport.



## Household Uses

- The Himalayans also use mosses as insect repellents when storing food.
- Local mosses and liverworts are dried, made into a coarse powder that is sprinkled over grains and other goods to be stored in containers.





## **Fibre industries**



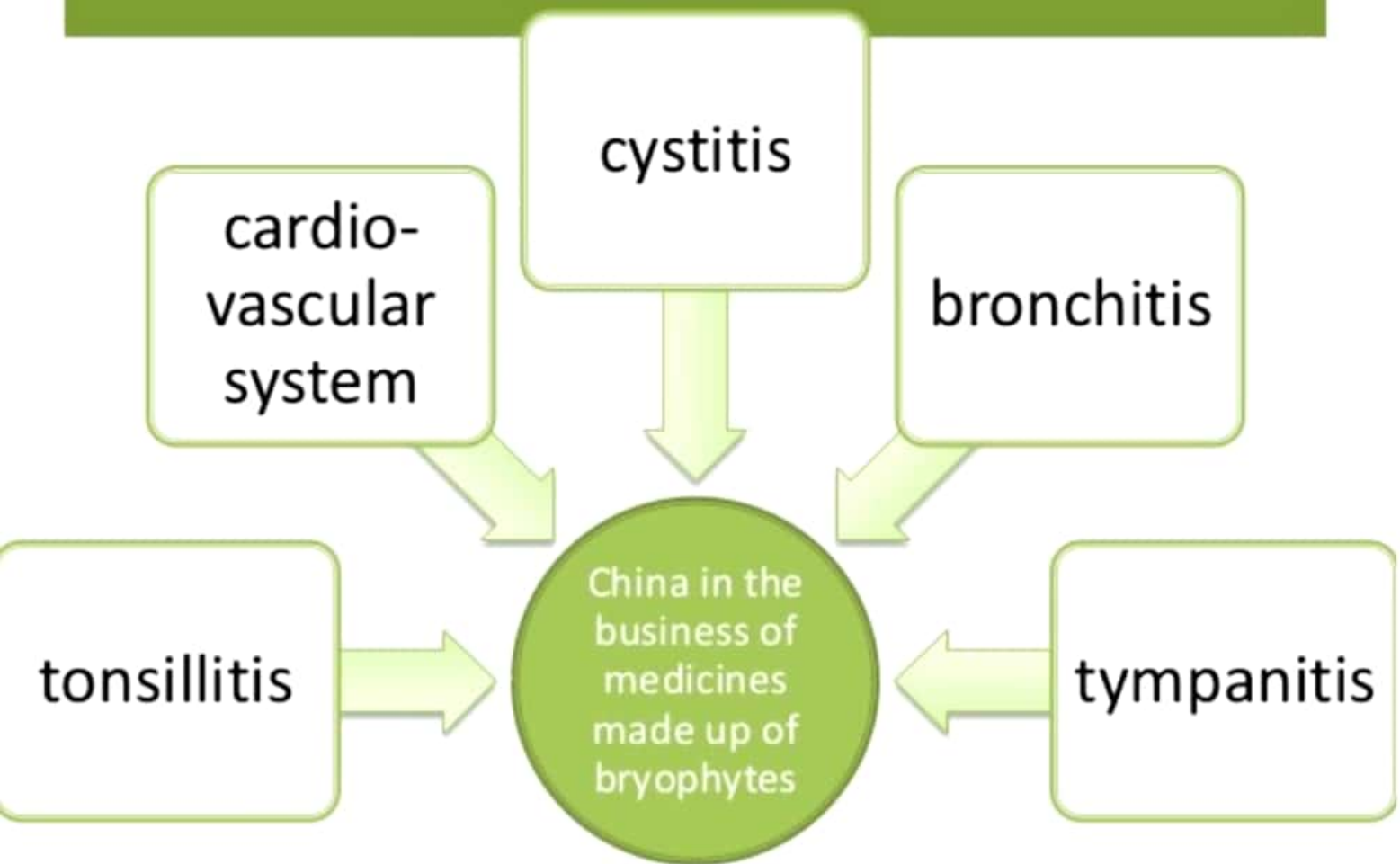
- Mosses are mixed with wool to make cheap clothes.
- They are used in decoration of net bags and other objects.
- Women also wear their steam like structure in their hair and as decorations in bracelets .
- Used in hiking boats to absorb odour and moisture.
- Used in lining of diapers to improve absorbing power.



## Medicinal Uses



# Medicines



## *Use in Biotechnology*

- Transgenic *Physcomitrella* are now being used to produce 'blood-clotting factor IX', for the treatment of haemophilia' B and other proteins



# Ecological Importance of Bryophytes





# Role of Bryophytes in Different Ways

PEAT  
FORMATION

SEED BEDS

FOOD AND  
SHELTER

POLLUTION

SOIL  
CONSERVATION

WATER  
EROISION AND  
NUTRIENT  
RECYCLING

INDICATOR OF  
soil PH

INDICATOR OF  
ACID RAIN

## PEAT FORMATION



- Peat is a brown dark colour spongy matter produce due to compression and carbonization by deposits and water.
- Sphagnum and other mosses form peat.
- used in horticulture, making ethyl alcohol and illuminating gas.

## Seed Beds



- Bryophyte mats may provide ideal sites for the germination of vascular plant seeds.
- Bryophyte mat can provide a fairly stable micro-habitat, protected against the drying effects of sun and wind and the extremes of temperature.
- Therefore a seed that falls into such a carpet could find itself in a relatively sheltered micro-habitat that is conducive to successful germination.



# Food AND SHELTER

- Many animals make use of bryophytes. Numerous invertebrates eat bryophytes, lay their eggs on them or shelter in them. They form a vital part of the construction material of the nest of some birds



- In Vertebrates the range of associations is much less.
- Northern Corroboree Frog are found near *Sphagnum* bogs . These endangered frogs breed in *Sphagnum* bogs in the alpine and sub-alpine areas but move away from boggy areas outside of the breeding season.





# POLLUTION

- Pollutants come in many forms from both urban and rural areas. Sulfur dioxide has been a significant industrial pollutant for many years, being a by-product of the use of high sulfur fuels.
- Sulfur dioxide is very damaging but some bryophytes are highly tolerant of sulfur dioxide pollution and examples of these are the mosses *Funaria hygrometrica* and *Bryum argenteum*



## SOIL CONSERVATION

- Bryophytes form a mat and prevent soil erosion.
- The intertwined moss stems and rhizoids bind soil particles firmly.
- Hold large amount of water and reduce run off.





# Water Erosion and Nutrient Recycling

## WATER EROSION and nutrient recycling:

- Bryophytes on tree trunks absorb rainwater that's flowing down the trunk and those hanging like curtains absorb water, both from rain and help maintain a humid atmosphere and so greatly influence the microclimate.
- Bryophytes will also trap any nutrients that are dissolved in the rain or mist droplets, in many cases trapping nutrients that would otherwise be washed away. Living bryophytes make use of the nutrients they trap and dead, decaying bryophytes release nutrients to the surrounding plants. In these ways bryophytes play an important role in nutrient recycling.

## Diagram



# Indicator of soil ph

- Liverworts and mosses are good indicators of soil ph.
- Some bryophytes can grow in narrow and specific range of ph so therefore their presence can be used as an indicator of soil ph.
- For example campylopus paradxus indicates acidic soil.





## Indicator of acid rain

- Mosses are good indicators of acid rain because they lack a protective epidermis and cuticle hence are most susceptible than vascular plants.
- For example neckera crispa indicates high ph as like of acid rain.

