

# Diseases



# • PLANT EXTRACTS FOR THE CONTROL OF DISEASES •

## WHAT ARE THEY?

SOME PLANTS EXTRACTS, ALSO IN COMBINATION WITH OTHER NATURAL SUBSTANCES READILY AVAILABLE (E.G. NATURAL SOAPS, MINERALS), HAVE REPELLENT, INSECTICIDAL, ANTIFEEDANT, AND ANTIFERTILITY ACTION AGAINST INSECT PESTS, CAN INCREASE THE STRENGTH OF THE PLANT TO DISEASES CAUSED BY FUNGI, BACTERIA OR VIRUSES, AND EVEN DRIVE AWAY OR ELIMINATE THE PATHOGEN.

## PLANT FEATURES

In general, the plants to be used should:

- Pose no hazard to non-target organisms, wildlife, humans or the environment.
- Be naturally present near the area where the garden is, or be easy to grow and require little space and time for cultivation.
- Be easy to harvest.
- Preparation should be simple, not too time-consuming or require too high technical input;
- applications should not be toxic to crops.

## HOW DO YOU MAKE THEM?

Natural extracts can be prepared as:

- **Decoction:** soak in cold water for a day, boil shortly (20 min.), cover the container and once the liquid is cool filter it.
- **Infusion:** put the plants into a container and pour boiling water over them, brew for 24 hours within the container covered
- **Macerate:** put the plants into a container filled with water outdoor, stir the extract every day for 1-2 weeks, the macerate is ready when it has become dark and does not foam.
- **Extract:** maceration in alcohol in a closed container, filtration and dilution.

## EXAMPLES OF EXTRACTS USED AND PATHOGENS AFFECTED

### Yarrow (*Achillea millefolium*)

**Preparation:** Maceration of 20g of flowers in 1 litre of water.

**Application:** Dilute up to 10% (1 part of extract in 9 parts of water) and spray the plants.

**Effect:** Preventive and curative against fungi.

### Ponytail (*Equisetum arvense*)

**Preparation:** Decoction (boil 1 hour) or liquid manure (3 weeks). The whole plant without root is used. Put 150g of fresh plant or 20g of dry plant in 1 litre of water.

**Application:** Dilute up to 20% (2 parts of extract and 8 parts of water). Spraying the plants every 10-15 days (as a preventive) or 3 days (as a curative). Apply in full sun.

**Effect:** Preventive and curative against fungi and insects.

### Garlic (*Allium sativum*)

**Preparation:** Infusion of 50g of garlic cloves per 1 litre of water. You can add potassium soap (10 g/l).

**Application:** Dilute up to 20%. Spray over the plants and soil applying 3 treatments on consecutive days.

**Effect:** curative against fungi and bacteria.

### Whole milk

**Preparation:** dilute 1 litre of milk in 10 litres of water.

**Application:** spray on crops

**Effect:** Good control of fungi development. Excellent foliar fertilizer protective and stimulating.

### Sodium bicarbonate

**Preparation:** mix in 4l of water 1 tablespoonful of sodium bicarbonate, 2.5 tablespoonfuls of vegetable oil, beat and add half a teaspoonful of natural soap.

**Application:** every 5-7 days until the disappearance of symptoms.

**Effect:** curative against mildew.

### Potash or soda soap

**Preparation:** Dissolve 30g soap on 1 litre of water

**Application:** Spray the plants. Avoid spraying the plants on sunny days because the soap is rapidly degraded by the sun.

**Effect:** fungicide mildews, botrytis and early blight, and insecticide. It is effective but it requires perseverance.

## SOME CONSIDERATIONS

- Success for disease control is prevention, and during the crop cycle we must make sure that plants are healthy. The diseases occur mainly in weak or imbalanced plants.
- Know the disease and act quickly, eliminating the affected parts of the plants or the entire plants when the first symptoms are identified. This is essential for the effective control of the disease progression in the garden.
- To prevent fungal growth air circulation should be promoted throughout wider plantation frames and removing debris and affected areas.
- Plants infected by viruses cannot be cured. Virus must be controlled through prevention of their vectors (insects that transport viral particles). Diagnosis often is misleading, if based on symptoms alone. In any case, when a virus appear remove immediately the affected plants.

## INTERACTIVE QUESTIONS

- How should you act when the first symptoms of a disease begin to show?
  - Do you know any extract to apply in case of disease? What?
- Do you think that correct garden planning may be a useful tool in controlling diseases?