**EXERCISE 3**

**HORTICULTURE**

**MARCOTTING**

**I. Introduction**

Marcotting is a means of plant propagation in which a portion of an aerial stem grows roots while still attached to the parent plant and then detaches as an independent plant. Layering has evolved as a common means of vegetative propagation of numerous species in natural environments. Layering is also utilized by horticulturists to propagate desirable plants. The horticultural layering process typically involves wounding the target region to expose the inner stem and optionally applying [rooting compounds](http://en.wikipedia.org/wiki/Auxin). Marcotting is more complicated than taking cuttings, but has the advantage that the propagated portion can continue to receive water and nutrients from the parent plant while it is forming roots. This is important for plants that form roots slowly, or for propagating large pieces.

**II. Objectives**

1. To know what marcotting is and how to work with it.

2. To marcot a plant stem correctly.

3. To produce a new plant using the marcotting technique.

**III. Result and Discussion**

We begin the experiment by soaking Sphagnum moss in ANAA solution in 30 minutes. Everyone of us select a stem to be marcot. We removed the membrane of the stem to be marcot. Then we scrape the cambium layer before putting the soaked sphagnum moss. We put transparent plastic for the reason that we could see if there is a root developed and to hold the sphagnum moss and remain in place.

**IV. Conclusion**

Stems that are still attached to their parent plant may form roots where they come in contact with a rooting medium. This method of vegetative propagation is generally successful, because water stress is minimized and carbohydrate and mineral nutrient levels are high. The development of roots on a stem while the stem is still attached to the parent plant is called marcotting. A layer is the rooted stem following detachment (removal) from the parent plant.

Some plants propagate naturally by marcotting, but sometimes plant propagators assist the process. Layering is enhanced by wounding the stem where the roots are to form. The rooting medium should always provide aeration and a constant supply of moisture.

**GRAFTING**

**I. Introduction**

Grafting is combining the tissues of one plant with another so the two join together. Typically, one plant is selected for its roots (called a rootstock) due to soil-pathogen resistance, temperature tolerance, and high fruit-yield, while the other plant is selected for its stems, flowers, or fruits (called a scion), selected for its desired genes, i.e. pretty flowers, or a particular fruit.

In order to the successful, the tissues of both stock and scion plants must remain in continuous contact, and stay alive until the tissues fuse (usually a period of weeks). These joints formed by grafting are generally not as strong as those naturally formed because only newly formed tissues fuse with each other.

**II. Objectives**

1. To learn how to graft.

2. To be able to know the role of grafting in plants.

**III. Result and Discussion**

We use Calachuchi as our plant to be propagated by the use of grafting technique. We use a Calachuchi scion and propagated it using the grafting plant propagation technique. We combine the scion to the plant and after that we cover it with transparent plastic to avoid water loss.

**IV. Conclusion**

Grafting encompasses any process whereby a part (called the scion) taken from one plant, is made to unite with and grow upon another plant or part of a plant (called the stock). The scion may be a single bud, a small twig bearing a few to several buds, a piece of stem (as of a cactus), a terminal shoot (as of an evergreen), or a fragment of root of a desirable variety. The primary purpose of grafting is to either increase the chances of the scion's making successful growth by giving it a new foundation in the form of a more vigorous root system than it had originally, or to change over the form, character, fruit-bearing quality, etc. of the stock plant or tree by substituting some other variety for its original top.

**CUTTING**

**I. Introduction**

One of the most amazing things about plants is that every cell has the ability to duplicate all parts and functions of the plant. By taking a cutting of a leaf or stem and creating the right conditions, you can create an entirely new plant.

Propagation by stem cuttings is the most commonly used method to propagate many woody ornamental plants. Stem cuttings of many favorite shrubs are quite easy to root. Typically, stem cuttings of tree species are more difficult to root. However, cuttings from trees such as crape myrtles, some elms, and birches can be rooted.

Since most plant cuttings will have no root system of their own, they are likely to die from dehydration if the proper conditions are not met. They require a moist medium, which, however, cannot be too wet lest the cutting rot. A number of media are used in this process, including but not limited to soil, perlite, vermiculite, coir, rock wool, expanded clay pellets, and even water given the right conditions.

**II. Objectives**

1. To learn the correct procedures and techniques in cutting plants.

2. To have more knowledge about cutting.

**III. Result and Discussion**

We use Eugenia as our sample in propagating plant through the method of stem cutting. We cut 10 stems for 1 pot A (with plastic cover). And another 10 stems for pot B. and we soak it with ANAA solution for 1 minute. Unfortunately the performed experiment in propagating Eugenia is not successful.

**IV. Conclusion**

Parts of plants cut, or sometimes broken, from a parent plant and inserted into water, sand, soil-less mixes, sphagnum or peat moss, vermiculite, perlite, or many possible combinations thereof, where they form roots and become new plants are known as cuttings. More recent rooting medium developments include foam and tree bark "rooting cubes" which provide all of the benefits of the aforementioned media, with less mess, greater ease of use, and in many cases, greater success rates.

**MEDIA PREPARATION**

**I. Introduction**

Microorganisms need nutrients, a source of energy and certain environmental conditions in order to grow and reproduce. In the environment, microbes have adapted to the habitats most suitable for their needs, in the laboratory, however, these requirements must be met by a culture medium. This is basically an aqueous solution to which all the necessary nutrients have been added. Depending on the type and combination of nutrients, different categories of media can be made.

There is a wide variety of media which are used in microbiology, but the procedures used in their preparation are generally the same. They include weighing out the dehydratedmedia, dissolving it in dH2O, sterilizing it (usually by autoclaving), pouring the plates, preincubation to check for contamination and to dry out the plates, and storage.

**II. Objectives**

1. To learn the process in media preparation and orchid embryo culture.

2. To prepare a very virtuous media for the orchid.

**III. Result and Discussion**

In media preparation, mix the gulaman with approximately 300 ml of warm water, then boil until all the gulaman is dissolved. We can also mix the C compounds banana puree, coconut water and sugar.

 In culturing the orchids, first heat the scoop with the alcohol lamp to avoid the appearance of contamination. Scoop a little amount of cultured orchids with the help of scoop. There is water and alcohol and if you ready scoop from the cultured bottle, place the bottle near the flame of the alcohol lamp to avoid from contamination, after that cover the bottle with the cotton and label the bottle and put it in the cool and well lighted place or at the tissue culture laboratory.

**IV. Conclusion**

 I also enjoyed this activity because of the hands-on culturing as well as we have experience the media preparation and culturing of orchids. I am also nervous in culturing orchids but in general I learned a lot.