**Flower Culture: Meaning, Principle, Protocol and Importance**

#### What is the Meaning of Flower Culture?

Flower culture can be defined as the aseptic culture of excised floral bud on a chemically de­fined nutrient medium where they continue their development to produce a full bloom in a culture vessel.

Young and complete flower culture can also be described as flower culture. In culture me­dium, the flowers remain healthy and they de­velop normally to mature seeds.

#### Principle:

Flowers can be cultured at the different sta­ges of development, such as primordial stage, bud stage, pre-pollination stage and post-pollination stage. Flower primordia and the young flo­wer bud require a complex medium containing inorganic salts, B-vitamins, amino acids, coconut milk, auxins and cytokinins. The mature flow­ers at pre or post-pollination stage need compar­atively simple media containing inorganic salts, sucrose and a small quantity of hormones.

#### Protocol:

(1) Flower buds or mature flowers are collected from the healthy plants.

(2) Wash them thoroughly and dip them in 5% Teepol solution for 10 minutes and wash.

(3) Transfer them to laminar air-flow cabinet. Surface sterilizes them by immersing in 5% Sodium hypochlorite, wash with autoclaved distilled water.

(4) Using flamed forceps, transfer the flower bud or mature flower to culture tubes con­taining 20 ml solid medium.

(5) Incubate the culture in 16 hrs. light at 25° C.

#### Importance:

(1) The main application of floral primordia or flower bud culture is in fundamental studies of flower development.

(2) Flowers put into the culture before pollina­tion do not usually produce fruits. In some cases, parthenocarpic fruit development has been observed, particularly in presence of auxins.

(3) The culture of pollinated flowers is very im­portant to study the fruit development. Of­ten the in vitro fruits are smaller than their natural counterparts, but the size can be in­creased by supplementing the medium with an appropriate combination of growth hor­mones such as auxins, gibberellins and cytokinins.

(4) Flower culture has been used to study the sex expression in flower. In the cucumber (Cucumis sativus), there exist different ge­netic lines that are monoecious (with uni­sexual male or female flowers on the same plant), gynoecious (purely female) or her­maphrodite.

Under suitable natural conditions, the monocious types will produce only staminate male flower and the gynoecious types only pistilated female flower.

It has been observed that in culture the po­tentially male buds tend to form ovaries and this tendency is promoted when IAA is added to the culture medium. In contrast, addition of gibberellic acid counteracts the effect of auxin. Iso­lated potentially female or bisexual flower buds in culture remain unchanged even in presence of IAA or gibberellic acid or cytokinins. Such culture techniques are also important for exper­imental studies on floral morphogenesis.