# Technical Information

## Orchid Agar

## Product Code: DM 1848

**Application: -** Orchid Agar is used for germination of orchid seeds.

## Composition**

| Ingredients | Gms / Litre |
|---|---|
| Calcium nitrate | 1.000 |
| Monopotassium dihydrogen phosphate | 0.250 |
| Magnesium sulphate | 0.250 |
| Ammonium sulphate | 0.500 |
| Ferrous sulphate | 0.025 |
| Manganese sulphate | 0.0075 |
| Saccharose | 20.000 |
| Agar | 8.000 |
| Final pH ( at 25°C) | 5.0±0.2 |

**Formula adjusted, standardized to suit performance parameters

## Principle & Interpretation

Orchids exhibit flowers of exquisite beauty and variety of patterns and belong to one of the largest family, the *Orchidaceae.* Orchids are the first floricultural crop successfully mass propagated through tissue culture technique. Orchids may be propagated either sexually or asexually. Vegetative propagation is common practice for many of the commercial orchids. Germination of seeds can be both symbiotic or asymbiotic. Symbiotic seed germination is done under natural conditions, the orchid seeds germinate after being infected by fungus and mycorrhiza. Orchid seeds have very little reserves amount of food and the symbiotic organisms provide the required nutrients. Lewis Knudson in 1916 formulated a medium Asymbiotic germination is done by aseptic inoculation of seeds on medium.

Orchid Agar was developed by Knudson [1, 2] for the germination of orchid seeds in which they were germinated successfully without fungal infection [4]. In his research he found the importance of the presence of minor elements like copper, manganese and zinc for the growth of orchid seeds. The medium also consists of iron, which is three times more the concentration of manganese. Somers and Shive [3] reported that the medium is optimum for orchid seed germination when amount of iron, is double or triple than manganese, in. Ammonium and magnesium sulphate in the medium helps in germination of the orchid seeds. Saccharose (sucrose) is the carbohydrate source in the medium while monopotassium phosphate helps in maintaining the acidic pH of the medium by its buffering action.

## Methodology

Suspend 30.03 grams of powder media in 1000 ml distilled water. Shake wll and heat to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Mix well and pour into sterile Petri plates.

## Quality Control

**Physical Appearance**
White to cream homogeneous free flowing powder
**Gelling**
Firm, comparable with 0.8% Agar gel
**Colour and Clarity of prepared medium**
Light yellow coloured opalescent gel forms in Petri plates that may contain a slight precipitate.

**Reaction**

Reaction of 3.0% w/v aqueous solution at 25°C. pH : 5.0±0.2

**pH Range** 4.80-5.20

**Cultural Response/ characteristices**

DM 1848: Satisfactory germination of orchid seeds was observed within a month.

## Storage and Shelf Life

**Dried Media:** Store below 30°C in tightly closed container and use before expiry date as mentioned on the label.
**Prepared Media**: 2-8$^{o}$ in sealable plastic bags for 2-5 days.

## Further Reading

1. Knudson L., 1922, Bot. Gaz., 73:1.
2. Knudson L., 1943, Amer. Orchid. Soc. Bull., 12:77.
3. Somers I. I. and Shive J. W., 1942, Plant Physiol., 17:582.
4. Knudson L., 1916, Cornel Univ. Agric. Exper. Sta. Merm 9:1

## Disclaimer :

- User must ensure suitability of the product(s) in their application prior to use.
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