

## De Greef & Jacobs Plant Salt Mixture

TS1114

### Composition :

| Ingredients                                   | milligrams/litre |
|---|------------------|
| Potassium nitrate                             | 2000.00          |
| Ammonium sulphate                             | 400.00           |
| Calcium chloride.2H <sub>2</sub> O            | 300.00           |
| Magnesium sulphate                            | 244.17           |
| Sodium phosphate monobasic                    | 250.00           |
| Potassium chloride                            | 600.00           |
| Manganese sulphate.H <sub>2</sub> O           | 1.68             |
| Boric acid                                    | 10.62            |
| Potassium iodide                              | 1.58             |
| Molybdic acid (sodium salt).2H <sub>2</sub> O | 0.0025           |
| Zinc sulphate.7H <sub>2</sub> O               | 1.06             |
| Copper sulphate.5H <sub>2</sub> O             | 0.0025           |
| Cobalt chloride.6H <sub>2</sub> O             | 0.0025           |
| Ferrous sulphate.7H <sub>2</sub> O            | 27.80            |
| EDTA disodium salt.2 H <sub>2</sub> O         | 37.26            |
| <b>TOTAL gm/litre</b>                         | <b>3.87</b>      |

### Directions :

Suspend 3.78 grams of dehydrated plant salt mixture<sup>#</sup> in 600ml of distilled water and rinse media vial with small quantity of distilled water to remove traces of powder. Apply constant gentle stirring to the solution till the powder dissolves completely. Add desired heat stable supplements prior to autoclaving. Adjust the medium to the desired pH using 1N HCl/NaOH. Make up the final volume to 1000ml with distilled water. Sterilize the medium by autoclaving at 15 lbs or 121°C for 15 minutes. Cool the autoclaved medium to 45°C before adding the filter sterilized heat labile supplements. Dispense the desired amount of medium aseptically in sterile culture vessels.

<sup>#</sup> Weight after vacuum drying to remove all water

### Principle and Interpretation :

De Greef & Jacobs plant salt mixture has been specially formulated for plant cell, tissue and organ cultures. The mixture contains macroelements, microelements and iron source.

**Quality Control :**

|                    |   |
|--------------------|---|
| Appearance         | : White to off-white, homogeneous, free flowing powder.                     |
| Solubility         | : 3.78 gm/litre soluble in distilled water.                                 |
| Colour and Clarity | : Colourless to light yellow, clear solution.                               |
| pH at 25°C         | : 4.0 ±0.5 (under observation) of 0.378% w/v dehydrated plant salt mixture. |

**Cultural Response :****Cultural condition :**

|                              |              |
|------------------------------|--------------|
| · Incubation period          | : 5 weeks    |
| · Relative humidity          | : 60% ± 2%   |
| · Temperature                | : 22°C ± 2°C |
| · Photoperiod (D:N) in hours | : 16:8       |

| Cell Line             | Type of Culture | Results   |
|-----------------------|-----------------|---|
| <i>Musa</i> species   | Shoot culture   | No structural deformity observed<br>No necrotic tissues,<br>Actively growing shoots,<br>No toxicity to shoots |
| <i>Daucus</i> species | Callus culture  | No necrotic tissues,<br>Actively growing callus,<br>No toxicity to callus                                     |

[The medium is prepared as per direction. The growth promoting activity of this plant salt mixture is evaluated using two plant species viz. *Musa* species and *Daucus* species through three passages. Plant growth hormones (e.g. 2,4-D, NAA, Kinetin and 6-BAP) are added in suitable combinations and concentrations.]

**Storage and shelf life :**

Dehydrated plant salt mixture powder is extremely hygroscopic and should be protected from atmospheric moisture. If possible, the entire content of each bottle should be used immediately after opening or else the unused portion should be stored in a desiccator and refrigerated at 2-8°C. Use before the expiry date.

**Reference :**

1. De Greef W. & Jacobs M., Plant Sci. Lett., (1979), 17, 55 - 61

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