S - Medium (Morel & Wetmore Modification) PT058
w/ Vitamins, Sucrose and MES
w/o Agar

Composition :

Ingredients	milligrams/litre
Potassium nitrate	950.00
Ammonium nitrate	825.00
Calcium chloride.$2H_2O$	220.00
Magnesium sulphate	90.34
Potassium phosphate monobasic	85.00
Manganese sulphate.H_2O	0.08
Boric acid	1.00
Potassium iodide	0.01
Zinc sulphate.$7H_2O$	1.00
Copper sulphate.$5H_2O$	0.03
Aluminium chloride.$6H_2O$	0.05
Nickel chloride.$6H_2O$	0.03
Ferric ammonium citrate	50.00
myo - Inositol	100.00
Thiamine hydrochloride	1.00
Pyridoxine hydrochloride	1.00
Nicotinic acid (Free acid)	1.00
Biotin	0.01
Ca - pantothenate salt	1.00
Sucrose	10000.00
MES	700.00
TOTAL gm/litre	**13.03**

Directions :

Suspend 12.97 grams of dehydrated medium# 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 121ºC for 15 minutes. Cool the autoclaved medium to 45ºC before adding the filter sterilized heat labile supplements. Dispense the desired amount of medium aseptically in sterile culture vessels.

Weight after vacuum drying to remove all water

Principle and Interpretation :

S - Medium (Morel & Wetmore Modification) has been specially formulated for plant cell, tissue and organ cultures. Ammonium nitrate and potassium nitrate serves as nitrate sources. MES prevents acidification by buffering the medium. Sucrose serves as the carbohydrate source. Medium does not contain agar; hence this component has to be added to the medium before use.

Quality Control :

Appearance	: White to light pink, homogeneous, free flowing powder.
Solubility	: 12.97 gm/litre soluble in distilled water.
Colour and Clarity	: Yellow to dark yellow, clear solution.
pH at 25°C	: 4.2 ±0.5 of 1.297% w/v dehydrated medium.

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
Artemisia species	Shoot culture	No structural deformity observed
	Callus culture	No necrotic tissues, Actively growing callus, No toxicity to callus
Daucus species	Callus culture	No necrotic tissues, Actively growing callus, No toxicity to callus

[The medium is prepared as per direction. The growth promoting activity of this plant tissue culture medium is evaluated using two plant species viz. *Artemisia* 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 tissue culture media 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. Bourgin J.P., Chupeau Y., Missonier C., Physiol. Plant., (1979), 45, 288 - 292
2. Chupeau *et al.,* Biotechnology., (1989), 7, 503 - 507