



Product Information Sheet

K427 KAO & MICHAYLUK MODIFIED BASAL MEDIUM

Properties

Form:	Powder
Appearance:	White to Yellow
Application:	Plant Tissue Culture
Solubility:	Soluble in Water
Typical Working Concentration:	3.9 g/L
Storage Temp:	2 – 6°C
Storage Temp of Stock Solution:	Preparation of concentrated solutions is not recommended as insoluble precipitates may form.
Other Notes:	Contains the macro- and micronutrients, vitamins and organic supplements as described by Kao and Michayluk (1975).

Formula (mg/L)

Ammonium Nitrate	600
Boric Acid	3
Calcium Chloride, Anhydrous	453
Cobalt Chloride·6H ₂ O	0.025
Cupric Sulfate·5H ₂ O	0.025
Na ₂ EDTA·2H ₂ O	37.26
Ferrous Sulfate·7H ₂ O	27.85
Magnesium Sulfate, Anhydrous	146.55
Manganese Sulfate·H ₂ O	10
Molybdc Acid (Sodium Salt)·2H ₂ O	0.25
Potassium Chloride	300
Potassium Iodide	0.75
Potassium Nitrate	1900
Potassium Phosphate, Monobasic	170
Zinc Sulfate·7H ₂ O	2
p-Aminobenzoic Acid	0.02
L-Ascorbic Acid	2

D-Biotin	0.01
D-Calcium Pantothenate	1
Choline Chloride	1
Citric Acid (Free Acid) Anhydrous	40
Cyanocobalamin (Vitamin B ₁₂)	0.02
Folic Acid	0.4
Fumaric Acid	40
DL-Malic Acid	40
myo-Inositol	100
Niacinamide	1
Pyridoxine·HCl	1
Pyruvic Acid	20
Riboflavin	0.2
Thiamine·HCl	1
Vitamin A	0.01
Vitamin D ₃	0.01

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Application Notes

Plant species: *Vicia hajastana* (Kao & Michayluk, 1975); *Vicia faba* (Binding & Nehls, 1978); *Daucus carota* (Grzebelus et al, 2012).

This medium was originally developed for the culture of *Vicia hajastana* protoplasts. The culture of low cell densities (1-2 cells/ml) is enhanced when the medium is supplemented with organic acids, sugar alcohols, sugars, plant growth regulators and amino acids. Cell growth and division could also be enhanced by raising the concentrations of calcium chloride from 1 to 5 mM.

References

- Binding, H. and Nehls, R. (1978) Regeneration of Isolated Protoplasts of *Vicia faba* L. *Z. Pflanzenphysiol.* 88, 327-332.
- Grzebelus E, M Szklarczyk & R Baranski (2012) An improved protocol for plant regeneration from leaf- and hypocotyl-derived protoplasts of carrot. *Plant Cell Tiss Organ Cult* 109:101-109.
- Kao, KN and MR Michayluk (1975) Nutritional requirements for growth of *Vicia hajastana* cells and protoplasts at a very low population density in liquid media. *Planta* 126:105-110.

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