

Culture Media, Salts and Vitamin Mixes

Banana powder

B 4032 Banana powder 500 g
2-8°C Plant cell culture, tested

A spray dried mixture of banana puree and maltodextrin. Use at 30-80 g/L. Banana solids 50 wt. %

B 7399 Banana powder
RT Plant cell culture, tested

A lyophilized powder derived from bananas used to promote growth in plant tissue cultures. Use at a concentration of 25-40 g/L

Chu (N₆) Basal Salt Mixture

C 1416 Plant cell culture, tested, powder 1 L
2-8°C With the macro- and micronutrients as 10 L
 described by Chu (1975, 1981). 50 L

Formulated to contain 4.0 grams of powder per liter of medium.

References

- Chu, C.C., et al., Establishment of an efficient medium for anther culture of rice, through comparative experiments on the nitrogen sources *Scientia Sin.* **18**, 659-668 (1975)
- Chu, C.C., The N₆ medium and its application to anther culture of cereal crops, in *Plant Tissue Culture Plant Tissue Culture. Proceedings of the Peking Symposium*, Boston, MA (1981), 43-50
 R: 8-22-36/37/38 S: 7-17-26-36/37/39

Coconut water

C 5915 Plant cell culture, tested 100 mL
0°C Taken from coconuts to promote growth in 500 mL
 plant tissue cultures. 1 L

Use at a concentration of 5-20% (v/v)
 Material is deproteinized
 sterile-filtered

DKW/Juglans Basal Salt Mixture

D 6162 Plant cell culture, tested, powder 1 L
2-8°C With the macro- and micronutrients as 10 L
 described by Driver and Kuniyuki (1984);

McGranahan, et al. (1987).
 R: 8-36/37/38 S: 17-26-36

Gamborg's B-5 Basal Medium with Minimal Organics

G 5893 Plant cell culture, tested, powder 1 L
2-8°C With the macro- and micronutrients, and 10 L
 vitamins as described by Gamborg, et al. 50 L
 (1968).

Formulated to contain 3.2 grams of powder per liter of medium.

References

- Gamborg, O.L., et al., Nutrient requirements of suspension cultures of soybean root cells. *Exp. Cell Res.* **50**, 151-158 (1968)
 R: 8-36/37/38 S: 17-26-36

Gamborg's B-5 Basal Salt Mixture

G 5768 Plant cell culture, tested, powder 1 L
2-8°C With the concentrations of macro- and 10 L
 micronutrients as described by Gamborg, et al.

(1968).
 Formulated to contain 3.1 grams of powder per liter of medium.

References

- Gamborg, O.L., et al., Nutrient requirements of suspension cultures of soybean root cells. *Exp. Cell Res.* **50**, 151-158 (1968)
 R: 8-36/37/38 S: 17-26-36

Gamborg's Vitamin Solution (1000X)

G 1019 Plant cell culture, tested, liquid 50 mL
2-8°C

Solution contains (mg/ml): 100.0 myo-inositol, 1.0 nicotinic acid, 1.0 pyridoxine hydrochloride, 10.0 thiamine hydrochloride.

Use at a concentration of one ml per liter of prepared medium to achieve the proper final concentration.
 sterile-filtered

References

- Gamborg, O.L., et al., Nutrient requirements of suspension cultures of soybean root cells. *Exp. Cell Res.* **50**, 151-158 (1968)

Hoagland's No. 2 Basal Salt Mixture

H 2395 Plant cell culture, tested, powder 1 L
2-8°C With the macro- and micronutrients as 10 L
 described by Hoagland and Arnon (1938).

Formulated to contain 1.6 grams of powder per liter of medium.

References

- Hoagland, D.R., and Arnon, D.I., The water-culture method for growing plants without soil *Univ. Calif. Coll. Agric. Exp. Sta. Circ.* Berkeley, CA 347-353 (1938)
 R: 36/37/38 S: 26-36

McCown's Woody Plant Basal Salt Mixture

M 6774 Plant cell culture, tested, powder 1 L
2-8°C With the macro- and micronutrients as 10 L
 described by Lloyd and McCown (1981).

Formulated to contain 2.3 grams of powder per liter of medium.

References

- Lloyd, G., and McCown, B.H., Commercially-feasible micropropagation of Mountain Laurel, *Kalmia latifolia*, by shoot tip culture. *Proc. Int. Plant Prop. Soc.* **30**, 421-427 (1981)
 R: 36/37/38 S: 26-36

MEM Vitamin Solution (100x)

M 6895 cell culture, tested, liquid 100 mL
0°C sterile-filtered

◆ Endotoxin. tested
 DRY ICE

Murashige and Skoog Basal Medium (MS)

M 5519 Plant cell culture, tested, powder 1 L
2-8°C With the macro- and micronutrients, and 10 L
 vitamins as described by Murashige and Skoog 50 L
 (1962).

Formulated to contain 4.4 grams of powder per liter of medium.

References

- Murashige, T., and Skoog, F., A revised medium for rapid growth and bioassays with tobacco tissue cultures *Physiol. Plant.* **15**, 473-497 (1962)
 R: 8-36/37/38 S: 17-26-36

Murashige and Skoog Basal Medium with Gamborg's Vitamins

M 0404 Plant cell culture, tested, powder 1 L
2-8°C With the macro- and micronutrients as 10 L
 described by Murashige and Skoog (1962) and

the vitamins as described by Gamborg, et al. (1968).
 Formulated to contain 4.4 grams of powder per liter of medium.

References

- Gamborg, O.L., et al., Nutrient requirements of suspension cultures of soybean root cells. *Exp. Cell Res.* **50**, 151-158 (1968)
 - Murashige, T., and Skoog, F., A revised medium for rapid growth and bioassays with tobacco tissue cultures *Physiol. Plant.* **15**, 473-497 (1962)
- R: 8-36/37/38 S: 17-26-36

Culture Media, Salts and Vitamin Mixes

Murashige and Skoog Basal Medium with sucrose and agar

M 9274 Plant cell culture, tested, powder 1 L

2-8°C With the macro- and micronutrients, vitamins, 10 L

sucrose and agar as described by Murashige and Skoog (1962).
Formulated to contain 42.4 grams of powder per liter of medium.

References

Murashige, T., and Skoog, F., A revised medium for rapid growth and bioassays with tobacco tissue cultures *Physiol. Plant.* **15**, 473-497 (1962)
R: 36/37/38 S: 26-36

Murashige and Skoog Basal Salt Mixture (MS)

M 5524 Plant cell culture, tested, powder 1 L

2-8°C With the macro- and micronutrients as 10 L

described by Murashige and Skoog (1962). 50 L

Formulated to contain 4.3 grams of powder per liter of medium.

References

Murashige, T., and Skoog, F., A revised medium for rapid growth and bioassays with tobacco tissue cultures *Physiol. Plant.* **15**, 473-497 (1962)
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Murashige and Skoog Basal Salts with minimal organics

M 6899 (MSMO) 1 L

2-8°C Plant cell culture, tested, powder 10 L

With the macro- and micronutrients, and 50 L

vitamins as described by Linsmaier and Skoog (1965).

Formulated to contain 4.4 grams of powder per liter of medium.

References

Linsmaier, E.M. and Skoog, F., Organic growth factor requirements of tobacco tissue cultures *Physiol. Plant.* **18**, 100-127 (1965)
R: 8-36/37/38 S: 17-26-36

Murashige and Skoog Vitamin

M 7150 1000 ×, Plant cell culture, tested, powder 100 mL

2-8°C Use at a concentration of one ml per liter of prepared medium

to achieve the proper final concentration.

References

Murashige, T., and Skoog, F., A revised medium for rapid growth and bioassays with tobacco tissue cultures *Physiol. Plant.* **15**, 473-497 (1962)

Schenk and Hildebrandt Basal Salt Mixture

S 6765 Plant cell culture, tested, powder 1 L

2-8°C With the macro- and micronutrients as 10 L

described by Schenk and Hildebrandt (1972).

R: 8-36/37/38 S: 17-26-36

Schenk and Hildebrandt Vitamin

S 3766 100 ×, Plant cell culture, tested, liquid 1 L

2-8°C Package prepares 1 L of a 100× solution.

Use at a concentration of 10 ml per liter of prepared medium to achieve the proper final concentration.

White's Basal Salt Mixture

W 0876 Plant cell culture, tested, powder 1 L

2-8°C With the macro- and micronutrients as 10 L

described by White (1968).

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Yeast extract

Y 4250 CAS No. 8013-01-2 100 g

RT Plant cell culture, tested 250 g

Water soluble portion of autolyzed yeast 500 g

with intact B-complex vitamins. Yeast extract 1 kg

is a mixture of amino acids, peptides, water soluble vitamins and carbohydrates and can be used as additive for culture media.

Spray dried, autolyzed yeast

For general bacteriological use with a variety of microorganisms.

Solubility

..... 10%, remains clear after heating to 40°C.

References

Difco Manual 11th ed., Sparks, MD (1998), 572-574

Orchid Culture Media

Knudson C Modified Orchid Medium

K 4003 Plant cell culture, tested, powder 1 L

2-8°C With the macro- and micronutrients as 10 L

described by Knudson (1946). Contains sucrose.

Phytamax™ Orchid Maintenance Medium

P 6668 Plant cell culture, tested, powder 1 L

2-8°C With macro- and micronutrients, sucrose, 10 L

vitamins, MES, peptone and activated charcoal.

Phytamax is a trademark of Sigma-Aldrich Corporation.

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Phytamax™ Orchid Maintenance Medium without Charcoal

P 0931 Plant cell culture, tested, powder 1 L

2-8°C With macro- and micronutrients, sucrose, 10 L

vitamins, MES and peptone. Without activated charcoal.

Phytamax™ is a trademark of Sigma-Aldrich Corporation.

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Phytamax™ Orchid Medium with Charcoal and Banana Powder

P 1056 Plant cell culture, tested, powder 1 L

2-8°C With macro- and micronutrients, sucrose, 10 L

vitamins, MES, peptone, activated charcoal and banana powder.

Phytamax is a trademark of Sigma-Aldrich Corporation.

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