Banana powder

B 4032 Banana powder 500 g
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
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
With the macro- and micronutrients as described by Chu (1975, 1981).
Formulated to contain 4.0 grams of powder per liter of medium.

References
R: 8-22-36/37/38 S: 7-17-26-36/37/39

Coconut water

C 5915 Plant cell culture, tested 100 mL
Taken from coconuts to promote growth in plant tissue cultures.
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
With the macro- and micronutrients as described by Driver and Kunjyuki (1994); 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
With the macro- and micronutrients, and vitamins as described by Gamborg, et al. (1968).
Formulated to contain 3.2 grams of powder per liter of medium.

References
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
With the concentrations of macro- and micronutrients as described by Gamborg, et al. (1968).
Formulated to contain 3.1 grams of powder per liter of medium.

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

Gamborg’s Vitamin Solution (1000X)

G 1019 Plant cell culture, tested, liquid 50 mL
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.

References

Hoagland’s No. 2 Basal Salt Mixture

H 2395 Plant cell culture, tested, powder 10 L
With the macro- and micronutrients described by Hoagland and Arnon (1938).
Formulated to contain 1.6 grams of powder per liter of medium.

References
R: 36/37/38 S: 26-36

McCown’s Woody Plant Basal Salt Mixture

M 6774 Plant cell culture, tested, powder 10 L
With the macro- and micronutrients described by Lloyd and McCown (1981).
Formulated to contain 2.3 grams of powder per liter of medium.

References
R: 36/37/38 S: 26-36

MEM Vitamin Solution (100-)

M 6895 cell culture, tested, liquid 100 mL
sterile-filtered
Endotoxin .................................................. tested

Murashige and Skoog Basal Medium (MS)

M 5519 Plant cell culture, tested, powder 10 L
With the macro- and micronutrients, and vitamins as described by Murashige and Skoog (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 10 L
With the macro- and micronutrients 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
R: 8-36/37/38 S: 17-26-36
### Culture Media, Salts and Vitamin Mixes

#### Murashige and Skoog Basal Medium with sucrose and agar

<table>
<thead>
<tr>
<th>M 9274 Plant cell culture, tested, powder</th>
<th>1 L</th>
<th>With the macro- and micronutrients, vitamins, sucrose and agar as described by Murashige and Skoog (1962). Formulated to contain 42.4 grams of powder per liter of medium.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10 L</td>
<td></td>
</tr>
</tbody>
</table>

#### Murashige and Skoog Basal Salt Mixture (MS)

<table>
<thead>
<tr>
<th>M 5524 Plant cell culture, tested, powder</th>
<th>1 L</th>
<th>With the macro- and micronutrients as described by Murashige and Skoog (1962). Formulated to contain 4.3 grams of powder per liter of medium.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10 L</td>
<td></td>
</tr>
<tr>
<td></td>
<td>50 L</td>
<td></td>
</tr>
</tbody>
</table>

#### Murashige and Skoog Basal Salts with minimal organics (MSMO)

<table>
<thead>
<tr>
<th>M 6899 (MSMO) Plant cell culture, tested, powder</th>
<th>1 L</th>
<th>With the macro- and micronutrients and vitamins as described by Linsmaier and Skoog (1965). Formulated to contain 4.4 grams of powder per liter of medium.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10 L</td>
<td></td>
</tr>
<tr>
<td></td>
<td>50 L</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>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</td>
</tr>
</tbody>
</table>

#### Murashige and Skoog Vitamin

<table>
<thead>
<tr>
<th>M 7150 1000× Plant cell culture, tested, powder</th>
<th>100 mL</th>
<th>Use at a concentration of one ml per liter of prepared medium to achieve the proper final concentration.</th>
</tr>
</thead>
</table>

**Yeast extract**

<table>
<thead>
<tr>
<th>Y 4250 Plant cell culture, tested</th>
<th>100 g</th>
<th>CAS No. 8013-01-2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>250 g</td>
<td>Plant cell culture, tested</td>
</tr>
<tr>
<td></td>
<td>500 g</td>
<td>Water soluble portion of autolyzed yeast with intact B-complex vitamins. Yeast extract is a mixture of amino acids, peptides, water soluble vitamins and carbohydrates and can be used as additive for culture media.</td>
</tr>
<tr>
<td></td>
<td>1 kg</td>
<td>Spray dried, autolyzed yeast For general bacteriological use with a variety of microorganisms.</td>
</tr>
</tbody>
</table>

**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**

<table>
<thead>
<tr>
<th>K 4003 Plant cell culture, tested, powder</th>
<th>1 L</th>
<th>With the macro- and micronutrients as described by Knudson (1946). Contains sucrose.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10 L</td>
<td></td>
</tr>
</tbody>
</table>

**Phytamax**

**Orchid Maintenance Medium**

<table>
<thead>
<tr>
<th>P 6668 Plant cell culture, tested, powder</th>
<th>1 L</th>
<th>With macro- and micronutrients, sucrose, vitamins, MES, peptone and activated charcoal. Phytamax is a trademark of Sigma-Aldrich Corporation.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10 L</td>
<td></td>
</tr>
</tbody>
</table>

**Orchid Medium with Charcoal and Banana Powder**

<table>
<thead>
<tr>
<th>P 0931 Plant cell culture, tested, powder</th>
<th>10 L</th>
<th>With macro- and micronutrients, sucrose, vitamins, MES and peptone. Without activated charcoal. Phytamax™ is a trademark of Sigma-Aldrich Corporation.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10 L</td>
<td></td>
</tr>
</tbody>
</table>

**Phytamax**

**Orchid Maintenance Medium without Charcoal**

<table>
<thead>
<tr>
<th>P 1056 Plant cell culture, tested, powder</th>
<th>1 L</th>
<th>With macro- and micronutrients, sucrose, vitamins, MES, peptone, activated charcoal and banana powder. Phytamax is a trademark of Sigma-Aldrich Corporation.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10 L</td>
<td></td>
</tr>
</tbody>
</table>

**White’s Basal Salt Mixture**

<table>
<thead>
<tr>
<th>W 0876 Plant cell culture, tested, powder</th>
<th>1 L</th>
<th>With the macro- and micronutrients as described by White (1968).</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10 L</td>
<td></td>
</tr>
</tbody>
</table>

**Solubility**

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

**References**

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