

**Supplementary File S1:** media used for chestnut *in vitro* culture**Mineral solutions**

<b>DKW (DUCHEFA, NL)</b>		
	<b>Micro Elements</b>	<b>mg/l</b>
CuSO <sub>4</sub> .5H <sub>2</sub> O		0.25
FeNaEDTA		44.63
H <sub>3</sub> BO <sub>3</sub>		4.80
MnSO <sub>4</sub> .H <sub>2</sub> O		33.80
Na <sub>2</sub> MoO <sub>4</sub> .2H <sub>2</sub> O		0.39
ZnSO <sub>4</sub> .7H <sub>2</sub> O		17.00
	<b>Macro Elements</b>	<b>mg/l</b>
CaCl <sub>2</sub>		112.50
Ca(NO <sub>3</sub> ) <sub>2</sub> .2H <sub>2</sub> O		1664.64
KH <sub>2</sub> PO <sub>4</sub>		265.00
K <sub>2</sub> SO <sub>4</sub>		1559.00
MgSO <sub>4</sub>		361.49
NH <sub>4</sub> NO <sub>3</sub>		1416.00
	<b>Vitamins</b>	<b>mg/l</b>
Glycine		2.00
myo-Inositol		100.00
Nicotinic acid		1.00
Thiamine HCl		2.00
<b>MS3B (DUCHEFA, NL)</b>		
	<b>Micro Elements</b>	<b>mg/l</b>
CoCl <sub>2</sub> .6H <sub>2</sub> O		0.025
CuSO <sub>4</sub> .5H <sub>2</sub> O		0.025
FeNaEDTA		36.70
H <sub>3</sub> BO <sub>3</sub>		6.20
KI		0.83
MnSO <sub>4</sub> .H <sub>2</sub> O		16.90
Na <sub>2</sub> MoO <sub>4</sub> .2H <sub>2</sub> O		0.25
ZnSO <sub>4</sub> .7H <sub>2</sub> O		8.60
	<b>Macro Elements</b>	<b>mg/l</b>
CaCl <sub>2</sub>		332.02
KH <sub>2</sub> PO <sub>4</sub>		170.00
KNO <sub>3</sub>		950.00
MgSO <sub>4</sub>		180.54
NH <sub>4</sub> NO <sub>3</sub>		825.00
	<b>Vitamins</b>	<b>mg/l</b>
Glycine		2.00
myo-Inositol		100.00
Nicotinic acid		0.50

Pyridoxine HCl	0.50
Thiamine HCl	0.10

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**GD (DUCHEFA, NL)**


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<b>Micro Elements</b>	<b>mg/l</b>
CoCl <sub>2</sub> .6H <sub>2</sub> O	0.025
CuSO <sub>4</sub> .5H <sub>2</sub> O	0.025
FeNaEDTA	36.70
H <sub>3</sub> BO <sub>3</sub>	0.30
KI	0.80
MnSO <sub>4</sub> .H <sub>2</sub> O	1.00
Na <sub>2</sub> MoO <sub>4</sub> .2H <sub>2</sub> O	0.025
ZnSO <sub>4</sub> .7H <sub>2</sub> O	0.30
<b>Macro Elements</b>	<b>mg/l</b>
Ca(NO <sub>3</sub> ) <sub>2</sub> .2H <sub>2</sub> O	208.81
KCl	65.00
KH <sub>2</sub> PO <sub>4</sub>	300.00
KNO <sub>3</sub>	1000.00
MgSO <sub>4</sub>	17.09
NH <sub>4</sub> NO <sub>3</sub>	1000.00
<b>Vitamins</b>	<b>mg/l</b>
Glycine	4.00
myo-Inositol	100.00
Nicotinic acid	1.00
Pyridoxine HCl	1.00
Thiamine HCl	10.00

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**WPM (DUCHEFA, NL)**


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<b>Micro Elements</b>	<b>mg/l</b>
CuSO <sub>4</sub> .5H <sub>2</sub> O	0.25
FeNaEDTA	36.70
H <sub>3</sub> BO <sub>3</sub>	6.20
MnSO <sub>4</sub> .H <sub>2</sub> O	22.30
Na <sub>2</sub> MoO <sub>4</sub> .2H <sub>2</sub> O	0.25
ZnSO <sub>4</sub> .7H <sub>2</sub> O	8.60
<b>Macro Elements</b>	<b>mg/l</b>
CaCl <sub>2</sub>	72.50
Ca(NO <sub>3</sub> ) <sub>2</sub> .4H <sub>2</sub> O	471.26
KH <sub>2</sub> PO <sub>4</sub>	170.00
K <sub>2</sub> SO <sub>4</sub>	990.00
MgSO <sub>4</sub>	180.54
NH <sub>4</sub> NO <sub>3</sub>	400.00
<b>Vitamins</b>	<b>mg/l</b>
Glycine	2.00
myo-Inositol	100.00

Nicotinic acid	0.50
Pyridoxine HCl	0.50
Thiamine HCl	1.00

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**MS1B (DUCHEFA, NL)**

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<b>Micro Elements</b>	<b>mg/l</b>
CoCl <sub>2</sub> .6H <sub>2</sub> O	0.025
CuSO <sub>4</sub> .5H <sub>2</sub> O	0.025
FeNaEDTA	36.70
H <sub>3</sub> BO <sub>3</sub>	6.20
KI	0.83
MnSO <sub>4</sub> .H <sub>2</sub> O	16.90
Na <sub>2</sub> MoO <sub>4</sub> .2H <sub>2</sub> O	0.25
ZnSO <sub>4</sub> .7H <sub>2</sub> O	8.60
<b>Macro Elements</b>	<b>mg/l</b>
CaCl <sub>2</sub>	166.00
KH <sub>2</sub> PO <sub>4</sub>	85.00
KNO <sub>3</sub>	950.00
MgSO <sub>4</sub>	87.86
NH <sub>4</sub> NO <sub>3</sub>	825
<b>Vitamins</b>	<b>mg/l</b>
Glycine	2.00
myo-Inositol	100.00
Nicotinic acid	0.50
Pyridoxine HCl	0.50
Thiamine HCl	0.10

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**Establishment (pH 5.6)**

<b>DKW MEDIUM</b>	<b>MS3B MEDIUM</b>	<b>GD MEDIUM</b>
<b>DKW mineral solution</b> <b>0.5 mg/L BAP</b> <b>100 mg/L AA</b> <b>30g/L sucrose</b> <b>0.1g sequestrene 138</b> <b>8g/L Agar</b>	<b>MS3B mineral solution</b> <b>0.5 mg/L BAP</b> <b>100 mg/L AA</b> <b>30g/L sucrose</b> <b>8g/L Agar</b>	<b>GD mineral solution</b> <b>0.5 mg/L BAP</b> <b>100 mg/L AA</b> <b>30g/L sucrose</b> <b>8g/L Agar</b>

**Multiplication (pH 5.6)**

<b>DKW MEDIUM</b>	<b>MS3B MEDIUM</b>	<b>GD MEDIUM</b>
<b>DKW mineral solution</b> <b>0.1 mg/L BAP</b> <b>0.05 mg/L IBA</b> <b>100 mg/L AA</b>	<b>MS3B mineral solution</b> <b>0.1 mg/L BAP</b> <b>0.05 mg/L IBA</b> <b>100 mg/L AA</b>	<b>GD mineral solution</b> <b>0.1 mg/L BAP</b> <b>0.05 mg/L IBA</b> <b>100 mg/L AA</b>

30g/L sucrose 0.1g sequestrene 138 8g/L Agar	30g/L sucrose 8g/L Agar	30g/L sucrose 8g/L Agar
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### Elongation (pH 5.6)

#### WPM MEDIUM

WPM mineral solution 0.1 mg/L ZEATIN 100 mg/L AA 30g/L sucrose 8g/L Agar
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### Rooting (pH 5.6)

#### INDUCTION ROOTING MEDIUM 1

#### INDUCTION ROOTING MEDIUM 2

MS1B 25 mg/L IBA 30g/L sucrose	MS1B 3 mg/L IBA 30g/L sucrose
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#### ROOTING EXPRESSION MEDIUM

MS1B 30g/L sucrose 0.5g AC 8g/L Agar
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