

Jul 09, 2024

BG-11 media

DOI

<https://dx.doi.org/10.17504/protocols.io.q26g7pkzkgwz/v1>

is Sparrow¹

¹UIUC

CyanoWorld



is Sparrow

UIUC

Create & collaborate more with a free account

Edit and publish protocols, collaborate in communities, share insights through comments, and track progress with run records.

Create free account

OPEN  ACCESS



DOI: <https://dx.doi.org/10.17504/protocols.io.q26g7pkzkgwz/v1>

Protocol Citation: is Sparrow 2024. BG-11 media. protocols.io <https://dx.doi.org/10.17504/protocols.io.q26g7pkzkgwz/v1>

License: This is an open access protocol distributed under the terms of the [Creative Commons Attribution License](#), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited

Protocol status: Working

We use this protocol and it's working



Created: January 22, 2024

Last Modified: July 09, 2024

Protocol Integer ID: 93907

Keywords: protocol, media from mccormick lab, media, university of edinburgh

Disclaimer

DISCLAIMER – FOR INFORMATIONAL PURPOSES ONLY; USE AT YOUR OWN RISK

The protocol content here is for informational purposes only and does not constitute legal, medical, clinical, or safety advice, or otherwise; content added to **protocols.io** is not peer reviewed and may not have undergone a formal approval of any kind. Information presented in this protocol should not substitute for independent professional judgment, advice, diagnosis, or treatment. Any action you take or refrain from taking using or relying upon the information presented here is strictly at your own risk. You agree that neither the Company nor any of the authors, contributors, administrators, or anyone else associated with **protocols.io**, can be held responsible for your use of the information contained in or linked to this protocol or any of our Sites/Apps and Services.

Abstract

From McCormick lab, University of Edinburgh

(written by Anja Nenninger, Grant Gale, Alejandra Schiavon and Anton Puzorjov), introduced to protocols.io by myself



Stock solutions

1 **BG11 media**

100XBG11:

	Ingredient	Quantity (g/L)	
	NaNO ₃	149.6	
	MgSO ₄ 7H ₂ O	7.49	
	CaCl ₂	3.6	
	Citric acid	0.6	
	Na ₂ EDTA	1.12 ml 0.25M solution, pH 8.0	0.61 mL 0.5 M

Trace elements

A	B	C
Ingredient	Quantity (g/L)	
H ₃ BO ₃	2.86	
MnCl ₂ 4H ₂ O	1.81	
ZnSO ₄ 7H ₂ O	0.22	
Na ₂ MoO ₄ 2H ₂ O	0.39	
Co(NO ₃) ₂ 6H ₂ O	0.05	
CuSO ₄ 5H ₂ O	0.08	



Iron stock

	Ingredient	Quantity (g/100 mL)
	Ferric ammonium citrate	1.11

Phosphate stock

	Ingredient	Quantity (g/100 mL)
	K ₂ HPO ₄	3.05

Glucose stock

	Ingredient	Quantity (g/100 mL)
	Glucose	9

Sodium carbonate stock

	Ingredient	Quantity (g/100 mL)
	Sodium carbonate	2

Autoclave all above solutions



Filter sterilize all below solutions

HEPES buffer

	Ingredient	Quantity (g/100 mL)
	HEPES	23.8

Adjust to pH 7.8 using NaOH

Sodium bicarb stock

	Ingredient	Quantity (g/100 mL)
	NaHCO ₃	8.4

Liquid BG11

2

2. Liquid BG11 growth medium

For 1 litre BG11:

10 ml 100x BG11

1 ml Trace elements

1 ml Iron stock

1 ml Na₂CO₃



1 ml Phosphate stock
10 ml of TES (pH 8.2)
Up to 990ml with dH₂O

Autoclave

10 ml NaHCO₃ stock (added after cooling).

Note: If the NaHCO₃ is added before autoclaving it can cause undesired precipitation.

Note: For large scale projects 10 ml of TES can be replaced with 5 ml of HEPES to reduce the cost

Note: Mix properly before use, iron tends to precipitate.

Optional extras:

- 10 ml Glucose stock (e.g. essential for mutants without functional PSII. Final glucose concentration = 5 mM).

- Antibiotics (see point 6).

Note: If you add optional extras remember to adjust the volume of the dH₂O accordingly.

BG11 agar

3. BG11 agar plates

For 1 litre BG11 agar:

To prepare BG11 agar plates the growth medium and the agar must be autoclaved separately.

*Prepare in 1L bottle

10 ml 100x BG11

1 ml Trace elements

1 ml Iron stock

1 ml Na₂CO₃

1 ml Phosphate stock

10 ml of TES (pH 8.2)

3 g of sodium thiosulphate

Top up to 490ml with dH₂O,

Autoclave

*Prepare in 500 ml bottle



15 g of Difco bacto-agar
Top up to 500ml with dH₂O

Autoclave

Wait until both are ~60°C, mix and add:

10 ml NaHCO₃ stock

Antibiotic if necessary

BG11 LB agar

- 4 For 1 litre BG11 + LB agar:
To prepare BG11 + LB agar plates the growth medium and the must will be autoclaved separately.

*Prepare in 1L bottle

10 ml 100x BG11

1 ml Trace elements

1 ml Iron stock

1 ml Na₂CO₃

1 ml Phosphate stock

Top up to 440ml with dH₂O,

Autoclave

*Prepare in 500 ml bottle

15 g of Difco bacto-agar

Top up to 500ml with dH₂O

Autoclave

Wait until both are ~60°C, mix and add:

10 ml NaHCO₃ stock

50 ml of sterile LB medium (premade from the media kitchen)

Note: These plates do not require the addition of 3g of thiosulphate and TES buffer since they are commonly used only for 24 hr after triparental-mating (conjugation)



BG11 Sucrose

- 5 For 1 litre BG11 + Sucrose agar:
To prepare BG11 + sucrose agar plates the growth medium, the agar and the sucrose will be autoclaved separately.
- *Prepare in 1L bottle
 - 10 ml 100x BG11
 - 1 ml Trace elements
 - 1 ml Iron stock
 - 1 ml Na₂CO₃
 - 1 ml Phosphate stock
 - 10 ml of TES (pH 8.2)
 - 3 g of sodium thiosulphate
 - Top up to 400ml with dH₂O,

Autoclave

- *Prepare in 500 ml bottle
- 15 g of Difco bacto-agar
- Top up to 500ml with dH₂O

Autoclave

- *Prepare in 200 ml bottle
- 50 g of Sucrose
- Top up to 100ml with dH₂O
- Autoclave

Wait until all are ~60°C and mix.

Note: Once you have poured the plates wrap them individually with parafilm since they are very prone to contamination.

Antibiotics

- 6
6. Antibiotics
Add after medium is autoclaved



Chloramphenicol 25 µg/ml. Use 25 mg/ml in ethanol stock, add 1ml/L.

Spectinomycin 50 µg/ml. Use 100 mg/ml in water stock, add 0.5ml/L.

Kanamycin 50 µg/ml. Use 50 mg/ml in water stock, add 1 ml/L.

Erythromycin 50 µg/ml. Use 50 mg/ml in ethanol stock, add 1 ml/L.

Note: Antibiotic quantities above are for 1 litre of media. If your medium volume is different, add the appropriate concentration of antibiotics.