

---

# Bacterial Community Composition and Isolation of Actinobacteria from the Soil of Flaming Mountain in Xinjiang, China

Zixuan He <sup>1,2,†</sup>, Yuxian Wang <sup>3,†</sup>, Xiaoyu Bai <sup>4</sup>, Min Chu <sup>2</sup>, Yuanyang Yi <sup>2,4</sup>, Jing Zhu <sup>2</sup>, Meiyong Gu <sup>2</sup>, Ling Jiang <sup>3,\*</sup> and Zhidong Zhang <sup>1,2,3,\*</sup>

1 College of Life Sciences and Technology, Xinjiang University, Urumqi 830046, China

2 Institute of Microbiology, Xinjiang Academy of Agricultural Sciences/Xinjiang Key Laboratory of Special Environmental Microbiology, Urumqi 830091, China

3 College of Food Science and Light Industry, State Key Laboratory of Materials-Oriented Chemical Engineering, Nanjing Tech University, Nanjing 211816, China

4 College of Life Sciences, Xinjiang Normal University, Urumqi 830054, China

\* Correspondence: jiangling@njtech.edu.cn (L.J.); zhangzheedong@qq.com (Z.Z.)

† These authors contributed equally to this work.

\*Corresponding authors.

Ling Jiang, Email: jiangling@njtech.edu.cn

College of Food Science and Light Industry, State Key Laboratory of Materials-Oriented Chemical Engineering, Nanjing Tech University, Nanjing 211816, China.

Zhidong Zhang, Email: zhangzheedong@sohu.com

---

---

Xinjiang Key Laboratory of Special Environmental Microbiology, Institute of Microbiology, Xinjiang Academy of Agricultural Sciences, Urumqi 830091, China

**Supplementary Table S1.** A total of 11 media were prepared to isolate Actinobacteria.

---

NO.	Medium	Medium formulation
1	GAUZE's Medium (g/L)	Starch soluble 20 g; KNO <sub>3</sub> 1 g; FeSO <sub>4</sub> · 7H <sub>2</sub> O 0.01 g; MgSO <sub>4</sub> · 7H <sub>2</sub> O 0.5 g; Nacl 0.5 g; Agar 20 g ; H <sub>2</sub> O 1 L; pH7.4-7.6
2	M2 medium (g/L)	Yeast Extract 4 g; Glucose 4 g; Malt extract powder 10 g; KNO <sub>3</sub> 1 g; FeSO <sub>4</sub> · 7H <sub>2</sub> O, 0.01 g; MgSO <sub>4</sub> · 7H <sub>2</sub> O 0.5 g; Agar 20 g; H <sub>2</sub> O 1 L; pH7.8
3	M3 medium (g/L)	Starch soluble 20 g; KNO <sub>3</sub> 2 g; k <sub>2</sub> HPO <sub>4</sub> 2 g; Cheesin 1 g; NaCl 2 g; FeSO <sub>4</sub> · 7H <sub>2</sub> O, 0.01 g; MgSO <sub>4</sub> · 7H <sub>2</sub> O 0.5 g; CaCO <sub>3</sub> 0.02 g; Agar 20 g; H <sub>2</sub> O 1 L
4	M6 medium (g/L)	Shrimp Shell 2 g; Humic acid 1 g; Na <sub>2</sub> HPO <sub>4</sub> 0.5 g; MgSO <sub>4</sub> ·7H <sub>2</sub> O 0.5 g; FeSO <sub>4</sub> · 7H <sub>2</sub> O, 0.01 g; KCl 1.7 g; CaCO <sub>3</sub> 0.02 g; VB liquor (VB1 0.1 g ; Riboflavin 0.1 g; Niacin 0.1 g; VB <sub>6</sub> 0.1 g; Inositol 0.1 g; Pantothenic acid 0.1g) 1ml; Agar 20 g; H <sub>2</sub> O 1 L
5	M9 medium (g/L)	His 0.1 g ; KCl 1.7 g; D-Raffinose pentahydrate 1 g; FeSO <sub>4</sub> · 7H <sub>2</sub> O, 0.01 g; MgSO <sub>4</sub> · 7H <sub>2</sub> O 0.5 g; CaCO <sub>3</sub> 0.02 g; Agar 20 g; H <sub>2</sub> O 1 L

---

		Yeast Extract 4 g; Glucose 4 g; Malt extract powder
6	214 medium (g/L)	10 g; CaCO <sub>3</sub> 2 g; Starch soluble 20 g; Agar 20 g; H <sub>2</sub> O 1 L
		Yeast Extract 0.5 g; Peptone 0.5; Casein hydrolysate
7	R2A medium (g/L)	0.5 g; Glucose 4 g; Starch soluble 0.5 g; Dipotassium hydrogen phosphate 0.3 g; Anhydrous magnesium sulfate 0.024 g; Sodium pyruvate 0.3 g; Agar 20 g; H <sub>2</sub> O 1 L; pH7.2 ±0.2
		Soluble starch 15 g; Yeast extract 4 g; K <sub>2</sub> HPO <sub>4</sub> 0.5 g;
8	656 medium (g/L)	MgSO <sub>4</sub> ·7H <sub>2</sub> O 0.5 g; Agar 15 g; H <sub>2</sub> O 1 L; pH 7.4
		Yeast Extract 6 g; Glucose 5 g; KH <sub>2</sub> PO <sub>4</sub> 3g;
9	SSY medium (g/L)	MgSO <sub>4</sub> ·7H <sub>2</sub> O 0.5 g; CaCl <sub>2</sub> ·2H <sub>2</sub> O 0.25 g; (NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> 0.2 g; Trace elements(CaCl <sub>2</sub> · 2H <sub>2</sub> O 0.66 g; CoCl <sub>2</sub> •6H <sub>2</sub> O 0.18 g; CuSO <sub>4</sub> ·5H <sub>2</sub> O 0.16 g; H <sub>3</sub> BO <sub>3</sub> 0.1 g) 1 mL; Agar 20 g; H <sub>2</sub> O 1 L
		Peptone 5 g; Yeast Extract 1 g; Nacl 19.45 g; MgCl <sub>2</sub>
10	MA medium (g/L)	5.98 g; Na <sub>2</sub> SO <sub>4</sub> 3.24 g; C <sub>6</sub> H <sub>5</sub> FeO <sub>7</sub> 0.1 g; Cacl <sub>2</sub> 1.8; KCl 0.55 g; Na <sub>2</sub> CO <sub>3</sub> 0.16 g; KBr 0.08 g; SrCl <sub>2</sub> 0.034 g; H <sub>3</sub> BO <sub>3</sub> 0.022 g; Na <sub>2</sub> O·nSiO <sub>2</sub> 0.004 g; NaF 0.0024 g; NH <sub>4</sub> NO <sub>3</sub> 0.0016 g; Na <sub>2</sub> HPO <sub>4</sub> 0.008 g; Agar 20 g; H <sub>2</sub> O 1 L; pH 7.6
		Glucose 4 g; Yeast extract 4g; Malt extract 10 g;
11	GSM medium (g/L)	CaCO <sub>3</sub> 2 g; H <sub>2</sub> O 1 L; Agar 20g; pH 7.2

---