



# 读书汇报

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# ISOLATION AND CHARACTERIZATION OF HYDROLYTIC ENZYME PRODUCING HALOPHILIC BACTERIA *Salinicoccus roseus* FROM OKHA

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**关键词: 系统发育树, 嗜盐菌, 水解酶, 淀粉酶, 玫瑰色盐水球菌**

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背景





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# Halophile

From Wikipedia, the free encyclopedia

(Redirected from Halophiles)

**嗜盐菌**在高盐度条件下生长的微生物，是一种极端微生物有机体

**Halophiles** are organisms that thrive in high salt concentrations. They are a type of **extremophile** organism. The name comes from the Greek word for "salt-loving". While most halophiles are classified into the Archaea domain, there are also bacterial halophiles and some eukaryota, such as the alga *Dunaliella salina* or fungus *Wallemia ichthyophaga*. Some well-known species give off a red color from carotenoid compounds, notably bacteriorhodopsin. Halophiles can be found anywhere with a concentration of salt five times greater than the salt concentration of the ocean, such as the Great Salt Lake in Utah, Owens Lake in California, the Dead Sea, and in evaporation ponds.

嗜盐菌曾在比海洋盐度高五倍的环境中被发现

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## Classification

Halophiles are categorized as slight, moderate, or extreme, by the extent of their halotolerance. Slight halophiles prefer 0.3 to 0.8 M (1.7 to 4.8% — seawater is 0.6 M or 3.5%), moderate halophiles 0.8 to 3.4 M (4.7 to 20%), and extreme halophiles 3.4 to 5.1 M (20 to 30%) salt content.<sup>[1]</sup> Halophiles require sodium chloride (salt) for growth, in contrast to halotolerant organisms, which do not require salt but can

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分类	反映	举例
非嗜盐菌	在含0.2mol/L盐的培养基中生长最好	多数普通真细菌和多数淡水微生物
轻度嗜盐菌	在含0.2~0.5mol/L盐的培养基中生长最好	多数海洋微生物
中度嗜盐菌	在含0.5~2.5mol/L盐的培养基中生长最好，能在低于0.1mol/L盐中生长的被认为是兼性嗜盐菌	Vibrio costicola, Paracoccus Halodenitrificans, Pseudomonas species
边缘极端嗜盐菌	在含1.5~4.0mol/L盐的培养基中生长最好	Extothiorhodospira halophila, Actinopolyspora halophila, Halobacterium volcanii
极端嗜盐菌	在含2.5~5.2mol/L（饱和）盐的培养基中生长最好	Halobacterium salinarium, Halococcus morrhuae,
耐盐菌	能耐盐的非嗜盐菌。若生长范围超过2.5mol/L盐可被认为是极端嗜盐微生物	Staphylococcus epidermidis, Solute-tolerant yeasts, fung, alage



# 玫瑰色盐水球菌

编辑

本词条缺少信息栏、名片图，补充相关内容使词条更完整，还能快速升级，赶紧来编辑吧！

玫瑰色盐水球菌，南京农业大学农业环境微生物菌种保藏中心

中文名称	玫瑰色盐水球菌
属名	salinicoccus
种名加词	roseus
其它保藏中心编号	
来源历史	←南京农业大学农业环境微生物菌种保藏中心
收藏时间	
原始编号	GN-D
原产国	中国
资源归类编码	15131320101
模式菌株	非模式菌株
主要用途	研究；教学
特征特性	细胞球形，直径1.0~1.5μm。成对或四联排列。革兰氏阳性，不运动，不生芽孢，菌落红色。
具体用途	耐受10%的NaCl

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## 材料方法





# 技术路线



印度 奥卡海水样品中分离  
 生长条件为37℃ 5-10 ml 菌液 加入到 温度 15-  
 的嗜盐菌 培养基中 培养 24h 接种到平  
 运送 板 加入 抗生素 9h 透明圈 确定 有 抗生  
 H<sub>2</sub>O<sub>2</sub> lyzing Activity 测定 煮沸 10min 定容到  
 12ml 540nm 波长 测定 吸光度 值

Okha  
Okha Port  
town

Location in Gujarat, India  
 Coordinates: 22° 28' 0" N 69° 4' 0" E

Country	India
State	Gujarat
District	Devbhoomi Dwarka district

# 3

# 结果讨论





Characteristic	Strain	
	rvcokh1	rsk1
Colony	Flat	Flat
Motility	-	-
Colony pigmentation	Orange	Orange
NaCl range of growth (%w/v)		
Range	5-15%	5-15%
Optimum	10%	6%
pH of growth		
Range	6-9	6-9
Optimum	7.4	7.4
Temperature for growth		
Range	20-45°C	20-45°C
Optimum	37°C	37°C
Acid production from		
Maltose	-	-
Galactose	-	-
D-glucose	-	-
Fructose	-	-
Sucrose	-	-
Hydrolysis of		
Casein	+	+
Gelatin	+	+
Starch	+	+
Tween 80	+	+
Methyl Red test	-	-
Urease	-	-
Nitrate Reduction	-	-
Indole Production	-	-
H <sub>2</sub> S production	-	-
Voges-Proskauer Tests	-	-
G+C content	55.60%	55.70%

- 1、共分离出36株嗜盐菌
- 2、菌株10株产淀粉酶，8株产明胶酶，5株具有蛋白水解酶活性，3株显示脂解活性。
- 3、最后找出两株菌R1和R2，均能产生淀粉酶，蛋白酶，脂肪酶和明胶酶。
- 4、条件优化数据表明在温度37°C，pH值7-8，盐浓度5%，培养时间32h条件下的菌株达到最大酶活性。

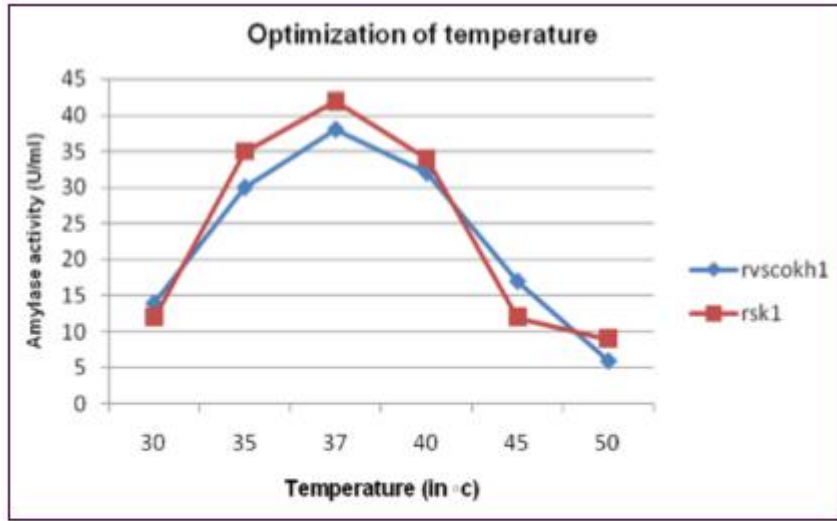


Fig. 1- Effect of temperature on enzyme activity in strain rvscokh1 & rsk1

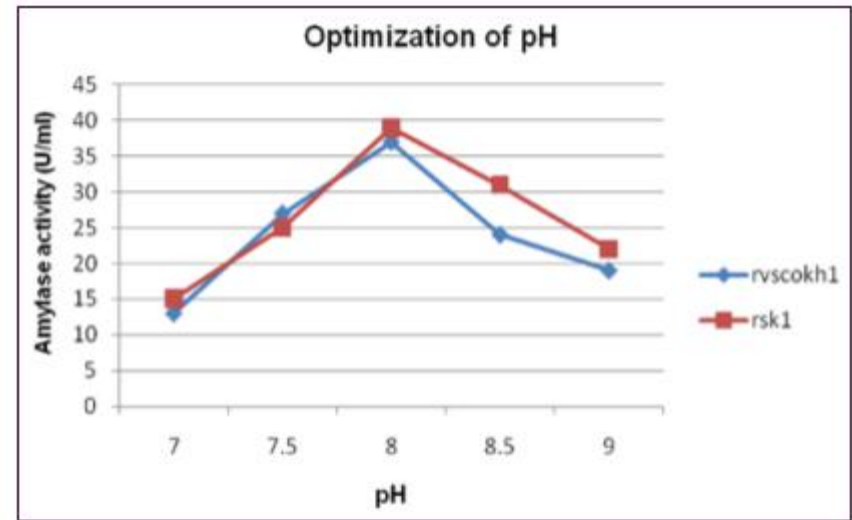


Fig. 2- Effect of pH on enzyme activity in strain rvscokh1 & rsk1

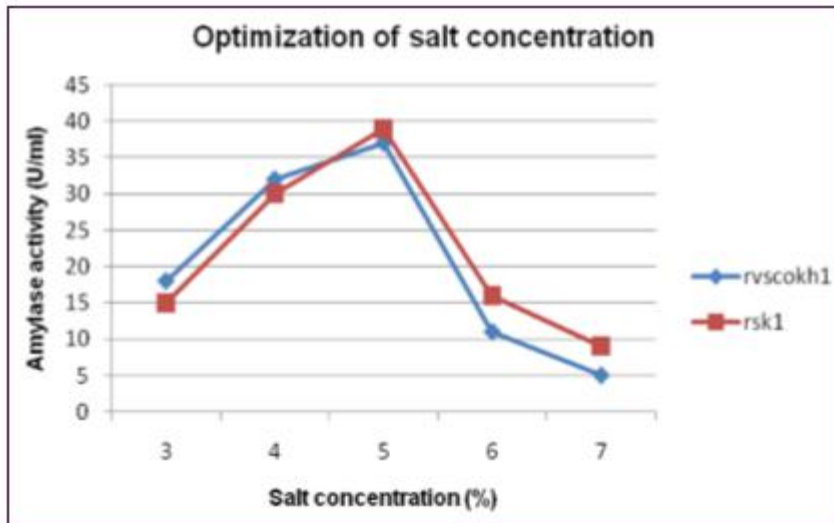


Fig. 3- Effect of salt concentration on enzyme activity in strain rvscokh1 & rsk1



No	Abbreviation	% Distance Matrix															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	SR	0.00															
2	SSP	0.00	0.01														
3	SSP	0.00	0.00	0.00													
4	SSP	0.00	0.01	0.00	0.00												
5	SSP	0.01	0.01	0.01	0.01	0.01											
6	Ub	0.00	0.01	0.01	0.01	0.01	0.01										
7	SSP	0.00	0.00	0.00	0.00	0.00	0.01	0.01									
8	Ub	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01								
9	Ub	0.00	0.01	0.00	0.00	0.01	0.01	0.01	0.00	0.01							
10	Ub	0.00	0.01	0.00	0.00	0.01	0.01	0.01	0.00	0.01	0.00						
11	Ub	0.00	0.01	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.01	0.01					
12	rvscokh1	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.01	0.00				
13	rsk1	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.01	0.00	0.00			
14	SSP	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00		
15	SR	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	
16	UB	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.01	0.01	0.01	0.01

SR- *Salinococcus roseus*, SSP- *Salinococcus* Sp., Ub- Uncultured bacterium

