

**NATIONAL BIORESOURCE DEVELOPMENT BOARD**

Dept. of Biotechnology  
Government of India, New Delhi

For office use:

**MARINE BIORESOURCES**

FORMS DATA ENTRY: Form- 1(general) Ref. No.:  
(please answer only relevant fields; add additional fields if you require)

Fauna :	Flora	√ Microorganisms
General Category : Eukaryota , Fungi , Ascomycota (Ascosporegenous yeast)		
Scientific name & Authority: <i>Saccharomyces kluyveri</i> Phaff, Miller et Shifrine (1956) Common Name ( if available ) :		
Synonyms: <i>Saccharomyces smittii</i> Capriotti (1958) <i>Saccharomyces silvestris</i> Jensen (1967)		
Authors: Same as given in synonym.		Status:
Ref. <b>The Yeast</b> ed. III (1984)		
Classification:		
Phylum: Ascomycota	Sub- Phylum: Saccharomycotina	
Super class	Class: Saccharomycetes	
Sub- Class		
Super Order:	Order: Saccharomycetales	
Super Family	Family: Saccharomycetaceae	
Sub-Family		
Genus: <i>Saccharomyces</i>	Species: <i>kluyveri</i>	
Authority:		
Reference No. Antonie Van Leeuwenhoek 73 (4), 331-371 (1998)		
Geographical Location:		
Latitude:	Place: Cochin backwaters and Andaman sea off Nicobar Island. (Isolated from the water samples down to 20m depth)	
Longitude:	State: EEZ of Indian coast	

Environment

Fresh water : Yes/ No

Habitat :

Salinity :

Brackish : Yes/ No

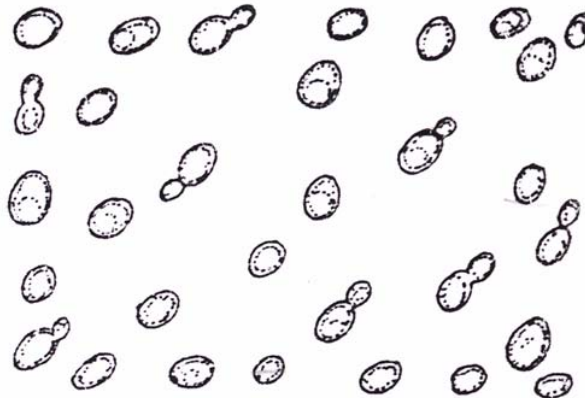
Migrations :

Temperature :

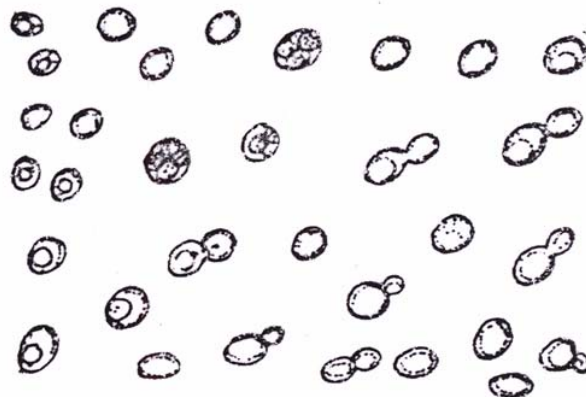
Salt water : Yes/ No

Depth range :

Picture (scanned images or photographs of adult / larval stages )



*Sacch. kluyveri*  
3 days in Malt extract  
Budding cells



*Sacch. kluyveri*  
15 days on Malt extract agar  
Ascospores inside the cells

Ref: From Ph.D. thesis of N.Prabhakaran, 1990

DATA ENTRY FORM: Form- 2(Fish / shellfish / others )  
(please answer only relevant fields ; add additional fields if you require)  
Form –1 Ref.No.:

#### IMPORTANCE

Landing statistics (t/y) : from                      to                      Place :                      Ref . No.:  
Main source of landing : Yes/ No                      Coast: east/ west  
Importance to fisheries :  
Main catching method :  
Used for aquaculture :yes/ never/ rarely  
Used as bait: yes/no/ occasionally  
Aquarium fish :yes/ no/ rarely  
Game fish : yes/ no  
Dangerous fish :poisonous/ harmful/ harmless  
Bioactivity : locally known/ reported/ not known                      Details:  
Period of availability: Throughout the year – yes/ no                      If no, months:

#### SALIENT FEATURES :

Morphological:

##### **Standard Description of *Saccharmyces kluyveri***

**Growth in Malt extract:** After 3 days at 25°C, the cells are globose, ellipsoidal or cylindrical (3.5 – 7.0) x (4.0 – 11.0)  $\mu$  m, single, in pairs or in clusters. A sediment and a thin ring are present. After one month at 20°C a sediment and a ring are present.

**Growth on Malt agar:** After one month at 20°C the streak culture is cream to tan, fairly flat and smooth to raised and wrinkled or folded, often sectored, glossy or dull, margin undulating or lobate sometimes fringed with pseudohyphae.

**Slide cultures on Corn Meal-and morphology agar:** Pseudohyphae indistinguishable from those of *Saccharomyces cerevisiae*, are usually formed.

**Formation of Ascospores:** Vegetative cells are transformed directly into asci containing one to four globose to subglobose ascospores.

Sporulation was observed in all the strains on acetate agar.

Diagnostic characteristics: -

a) Biochemical

**Fermentation:-**

Glucose + Maltose - or + w  
Galactose + Lactose -  
Sucrose +

**Assimilation of carbon compounds**

Galactose	+	Raffinose	+	Erythritol	-
Sucrose	+	Soluble starch	-	Ribitol	-
Maltose	+ or s	D-Xylose	- or + s	D-Mannitol	v
Cellobiose	v	L-Arabinose	-	Succinic acid	+ or s
Trehalose	+ or s	D-Ribose	-	Citric acid	-
Lactose	-	L-Rhamnose	-	Inositol	-

**Assimilation of nitrate: -**

**Assimilation of ethylamine .HCl : +**

**Assimilation of cadaverine 2HCl : +**

**Growth in vitamin - free medium: v**

**Growth on 50%(w/w) glucose – yeast extract agar: -**

**Growth at 37 °C : +**

**Growth in presence of 100 ppm of cycloheximide : -**

**G+C:40.0 mol. %**

Ref. **The Yeast** ed. III (1984)

b) rRNA sequence

```
1 aaaccaaccg ggattgcctt agtaacggcg agtgaagcgg caaaagctca aatttgaat
   61 ctggcacctt tgggtgccga gttgtaattt gaagaagtaa ctttggggct gatccttgtc
  121 tatgttcctt ggaacaggac gtcatagagg gtgagaatcc cgtgtggcga ggaattcagt
  181 cctatgtaaa gtgctttcga cgagtcgagt tgtttgggaa tgcagctcta agtgggtggt
  241 aaattccatc taaagctaaa tattggcgag agaccgatag cgaacaagta cagtgatgga
  301 aagatgaaaa gaactttgaa aagagagtga aaaagtacgt gaaattgttg aaaggaagg
  361 gcatttgatc agacatggtg ttttgcgacc ctagctcctt gtgggttggg atctcgcagc
  421 tcaactggcc aacatcagtt ttggcggtgg gataaatcct taggaatgtg gcttgtcttc
  481 ggagaagtgt tatagcctag ggaataaccg ccagccggga ctgaggactg cgacttttgt
  541 caaggatggt gccataatgg ttaaatgccg c
```

//

[entrez/viewer.fcgi?val=4038743&itemID=1&view=gbwithparts>](https://www.ncbi.nlm.nih.gov/entrez/viewer.fcgi?val=4038743&itemID=1&view=gbwithparts)

// note = " approximate sequence numbers relative to Saccharomyces cerevisiae are:1-582

Sex attributes:

Descriptive characters:

Meristic characteristics :

Feeding habit:

Main food :

Feeding type :

Additional remarks :

Size and age :

Maximum length (cm) (male / female/ unsexed )

Ref. No.:

Average length (cm) (male / female / unsexed )

Ref. No.:

Maximum weight : (g) (male / female / unsexed )

Ref.No.:

Average weight :(g) (male / female / unsexed )

Ref No.:

Longevity (y) (wild) : (captivity )

Ref. No.:

Length / weight relationships:

Eggs and larvae: Characteristics: Abundance:	Ref. No.:
Biochemical aspects: Proximate analysis: moisture/ fat/ protein/ carbohydrate/ash Electrophoresis:	Ref. No. Ref. No.
<p>MAJOR PUBLICATIONS (INDIAN): (include review articles, monographs, books etc.) (Internal Reports of NIO's EIA's studies) Ph.D.Thesis of N.Prabhakaran (CUSAT, Kochi)</p> <p>LIST OF INDIAN EXPERTS(Name, address, phone, fax, e-mail etc.) 1.Dr (Mrs) Ranu Gupta, NIO,RC, PBox.1616, Kochi 682014. e-mail <a href="mailto:drngupta@rediffmail.com">drngupta@rediffmail.com</a> Res.Ph.0484 2538067 2 Dr.G.S.Prasad, IMTECH,Chandigarh.</p> <p>ACKNOWLEDGMENT: (List of persons who contributed, modified or checked information) Assisted by Project Assistant Mrs.Maria Honey</p>	