

**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>Pichia bovis</i> van Uden et do Carmo-Sousa(1957) Common Name ( if available) :		
Synonyms: <i>Zymopichia bovis</i> (van Uden et do Carmo-Sousa) Novak et Zsolt (1961) Author( s) : 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>Pichia</i>	Species: <i>bovis</i>	
Authority:		
Reference No. Antonie Van Leeuwenhoek 73 (4), 331-371 (1998)		
Geographical Location:		
Latitude:	Place: Andaman sea and Cochin Backwaters. (Isolated from water and soil samples at 5-10 m depth)	
Longitude:	State: Off Nicobar Islands and Kerala.	

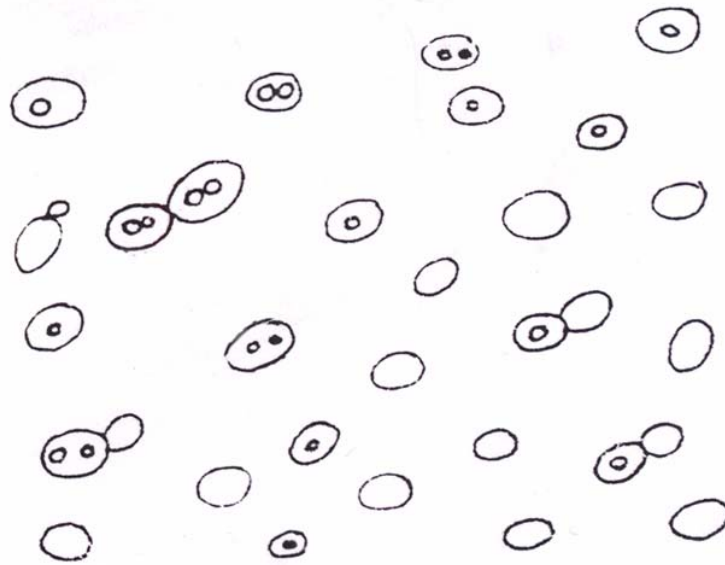
Environment

Fresh water : Yes/ No  
Brackish : Yes/ No  
Salt water : Yes/ No

Habitat :  
Migrations :  
Depth range :

Salinity :  
Temperature :

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



*P. bovis*  
7 day on Malt extract agar  
Budding cells and ascospores in 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 *Pichia bovis***

**Growth on 5% Malt extract agar:** After 3 days at 25°C, the cells are spheroidal to ovoidal (1.9 – 5.1) X (2.1 – 9.2)  $\mu$  m, and occur singly or in pairs. Growth is butyrous and tannish white in color.

**Growth on the surface of Assimilation media:** Dry climbing pellicles are formed.

**Dalmu plate culture on Morphology agar:** After 7 days at 25°C, growth of pseudohyphae under the cover glass may be rudimentary or moderately well developed. True hyphae are not formed. Aerobic growth is tannish-white, smooth, faintly glistening, butyrous, and with an entire margin.

**Formation of Ascospores:** Asci are unconjugated and generally contain no more than two spores. The spores are hat-shaped and liberated from the asci soon after formation. Spores were observed on YM-, 5% Malt extract-, V8-, acetate- and Gorodkova agar.

Diagnostic characteristics: -

a) Biochemical

**Fermentation:-**

Glucose	+	Maltose	-	Trehalose	- or + s
Galactose	-	Lactose	-		
Sucrose	-	Raffinose	-		

**Assimilation of carbon compounds**

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

**Additional carbon compounds tested :** L-Sorbose -, melibiose -, melezitose +, Inulin -, D-arabinose -, D- glucosamine .HCl -, glucitol +,  $\alpha$  methyl D-glucoside +, salicin +, potassium D-gluconate +, DL-lactic acid +.

**Assimilation of nitrate: -**

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

**Growth in 10% sodium chloride plus 5% glucose yeast nitrogen base : -**

**Growth at 37 °C : + or w**

**G+C: 43.2 mol. %**

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

b) rRNA sequence

```
1 aaaccaacag ggattgcctc agtaacggcg agtgaagcgg caaaagctca aatttgaat
61 ctagtacccc taccgagtgc tcgagttgta atttgaagat ggcaaacttt ggtggctggc
121 ccttgtctat gttccttgga acaggacgtc acagagggtg agaatcccgt ctgacgaggt
181 gaccagctg ccgtgtaaag tgctatcgaa gagtcgagtt gtttgggaat gcagctctaa
241 gtgggtggta aattccatct aaagctaaat attggcgaga gaccgatagc gaacaagtac
301 agtgatggaa agatgaaaag aactttgaaa agagagttaa aaagtacgtg aaattggtga
361 aaggggaagg tattagatca gacttggcca ccctacgatt atctgccctt tgtgggcagt
421 gcaactcgtg gtgcttgctg ggccagcatc gattcgggcg gcaggataat ggcgaaaagaa
481 cgtggcattg gccttctagg cggatgtggt tatagctttc gctgatgctg cctgctgga
541 tcgaggattg cgtctctctg agactaggat gctggcgtaa tgatttaata tcgc
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(<http://entrez/viewer.fcgi?val=4038846&itemID=1&view=gbwithparts> <1..>594)

Sex attributes:

Descriptive characters:

Meristic characteristics :

Feeding habit:

Main food :

Feeding type :

Additional remarks :

*Pichia bovis* is quite similar to *P. onychis*, but differs from the latter by its inability to ferment sucrose and raffinose and by its failure to assimilate raffinose and inulin.

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.
<b>SPAWNING INFORMATION:</b>	
Locality: Season: Fecundity: Comment:	Main Ref:
<b>MAJOR PUBLICATIONS (INDIAN):</b> (include review articles, monographs, books etc.) Internal Reports of NIO's EIA's studies Ph.D.Thesis of N.Prabhakaran (CUSAT, Kochi )	
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