

**NATIONAL BIORESOURCE DEVELOPMENT BOARD**

Dept. of Biotechnology  
Government of India, New Delhi

For office use:
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**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>Kluyveromyces marxianus</i> (Hansen) van der Walt var. <i>drosophilarum</i> (Shehata, Mrak et. Phaff) Johannsen et. van der Walt(1980)		
Common Name ( if available) :		
Synonyms: <i>Kluyveromyces drosophilarum</i> (Shehata , Mrak et Phaff)van der Walt (1971) <i>Guilliermondella phaseolospora</i> (Shehata, Mark et Phaff)Boidin, Abadie, Jacob et Pingal(1962)		
Author( s): Same as given in synonyms.		Status
Classification:		
Phylum: Ascomycota	Sub- Phylum: Saccharomycotina	
Super class	Class: Saccharomycetes	
Sub- Class		
Super Order:	Order: Saccharomycetales	
Super Family	Family: Saccharomycetaceae	
Sub-Family		
Genus: <i>Kluyveromyces</i>	Species: <i>marxianus</i>	
Authority:		
Reference No. Antonie Van Leeuwenhoek 73 (4), 331-371 (1998)		
Geographical Location:		
Latitude:	Place: Andaman Sea, EEZ of India and Bar mouth of Cochin Back waters	
Longitude:	State: Arabian sea and Kerala coast.	

Environment

Fresh water : Yes/ No

Habitat :

Salinity :

Brackish : Yes/ No

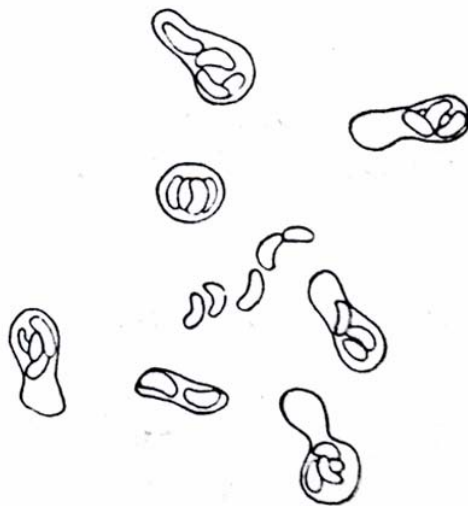
Migrations :

Temperature :

Salt water : Yes/ No

Depth range :

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



***K. marxianus***  
**5 days on YM agar**  
**Reniform ascospores in the cells**

Ref: Ranu Gupta (unpublished work)

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 *Kluyveromyces marxianus var. drosophilum***

**Growth in Malt extract:** After 3 days at 28°C the cells are spheroidal to ellipsoidal, seldom somewhat cylindrical, (2.0 – 5.0) X (2.5 – 6.5)µm, reproducing by budding, occur singly, in pairs or short chains or clusters. Conjugating cells and asci may be present. A ring and sediment and occasionally a thin pellicle are formed. After one month at room temperature a ring, a coherent to somewhat floccose sediment and islets or a thin pellicle are present.

**Growth on Malt agar:** After one month at room temperature the streak culture is cream-colored to grayish - buff occasionally with a pinkish ting, flat, rather spreading, somewhat dull, smooth or verruculose, occasionally sectored or striated near the margin. The margin may be smooth, undulating or lobiform.

**Dalmu plate on Corn Meal agar:** Tree like structures or a rudimentary pseudomycelium are formed.

**Formation of Ascospores:** Conjugation immediately precedes ascus formation or diploid, vegetative cells may be directly transformed into asci. The asci are evanescent. One to four reniform to crescentiform ascospores are formed per ascus. Released ascospores tend to agglutinate.

Sporulation is observed on 2% Malt extract agar, YM agar and the commonly employed sporulation media.

Diagnostic characteristics: -

a) Biochemical

**Fermentation:-**

Glucose	+	Maltose	-
Galactose	+	Lactose	-
Sucrose	+	Raffinose	+

**Assimilation of carbon compounds**

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

**Assimilation of nitrate: -**

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

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

**Growth at 37 °C : +**

**G+C: 38.5 - 40.9 mol %**

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

b) rRNA sequence

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Sequence 632 BP; 161 A; 132 C; 137 G; 200 T; 2 other;
aagattatga atgaatagat tactggggga atcgtctgaa caaggcctgc gcttaattgc      60
gcgccagtt cttgattctc tgctatcagt tttctatttc tcatcctaaa cacaatggag      120
ttttttctct atgaactact tccctggaga gctcgtctct ccagtggaca taaacacaaa      180
caatattttg tattatgaaa aactattata ctanaaaaatt taatattcaa aactttcaac      240
aacggatctc ttggttctcg catcgatgaa gaacgcagcg aattggcata tgtattgtga      300
attgcagatt ttcgtgaatc atcaaatctt tgaacgcaca ttgcgcctc tggtattcca      360
gggggcatgc ctgtttgagc gtcattttctc tctcaaacct ttgggttttg tagtgagtga      420
tactcgtctc gggttaactt gaaagtggct agccgttgcc atctgcgtga gcagggtcgc      480
gtgtcaagtc tatggactcg actcttgcac atctacgtct taggtttgcg ccaattcgtg      540
gtaagcttgg gtcanaagaga ctcataggtg ttataaagac tcgctggtgt ttgtctcctt      600
gaggcatacg gctttaacca aaactctcaa ag                                     632
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(FT [misc feature <wgetz?-e+-id+61Scs1MWq1Z+\[EMBL features-id:AB011519 4\]>](#) 388..>632  
FT /note="ITS 2")

Ref : *Int. J .Syst. Bacteriol.*49:1899 – 1905 (1999)

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.
<b>SPAWNING INFORMATION:</b>	
Locality: Season: Fecundity: Comment:	Main Ref:
<b>MAJOR PUBLICATIONS (INDIAN):</b> (include review articles, monographs, books etc.) 1. Unpublished work (Internal Reports of NIO's EIA's studies) 2. Ph.D.Thesis of N.Prabhakaran (CUSAT, Kochi 3. Bioresource Technology-Aug-2003  <b>LIST OF INDIAN EXPERTS(Name, address, phone, fax, e-mail etc.)</b>  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.  <b>ACKNOWLEDGMENT:</b> (List of persons who contributed, modified or checked information) Assisted by Project Assistant, Mrs.Maria Honey.	