

Microbial Resources as a Source for Development of Biorefinery



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Outline

- ❁ **Microbial Diversity and Culture Collection**
- ❁ **Screening and Cloning of Microbial Collection for Biorefinery Development**
- ❁ **Networking and Linking of Culture Collections**





Microbial Diversity and Culture Collection (1996-2016-Present)

- ❖ Research Center for Biotechnology LIPI
- ❖ Research Center for Biology LIPI
- ❖ LIPI – JBA Project (FY 1996-2001)
- ❖ LIPI – NITE Project (FY 2003-2008)
- ❖ Satreps InaCC (FY 2010-2015)





Joint Collaboration Research with Japan

**Six Years Collaboration with Japan (April 2003-
March 2009)**

- Isolation and Identification of Actinomycetes,
Fungi, and Yeasts from Indonesia**
- Isolation and Identification of oil degrading
bacteria from Indonesian environments**



Sampling sites in Indonesia

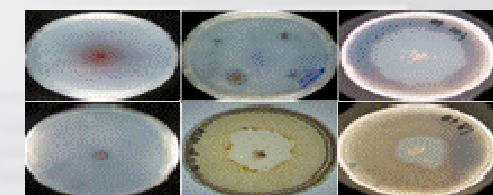
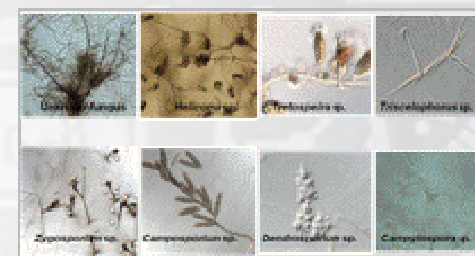


LIPI-NITE Project, FY 2003-2008



Number of Identified Microorganisms

PA-1	Total isolates	Total genera
Fungi	2518	205
Yeast	525	27
Actinomycetes	3193	64
Total	6211	296



PA-2	Total isolates	Total genera
PAHs degrading bacteria	750	





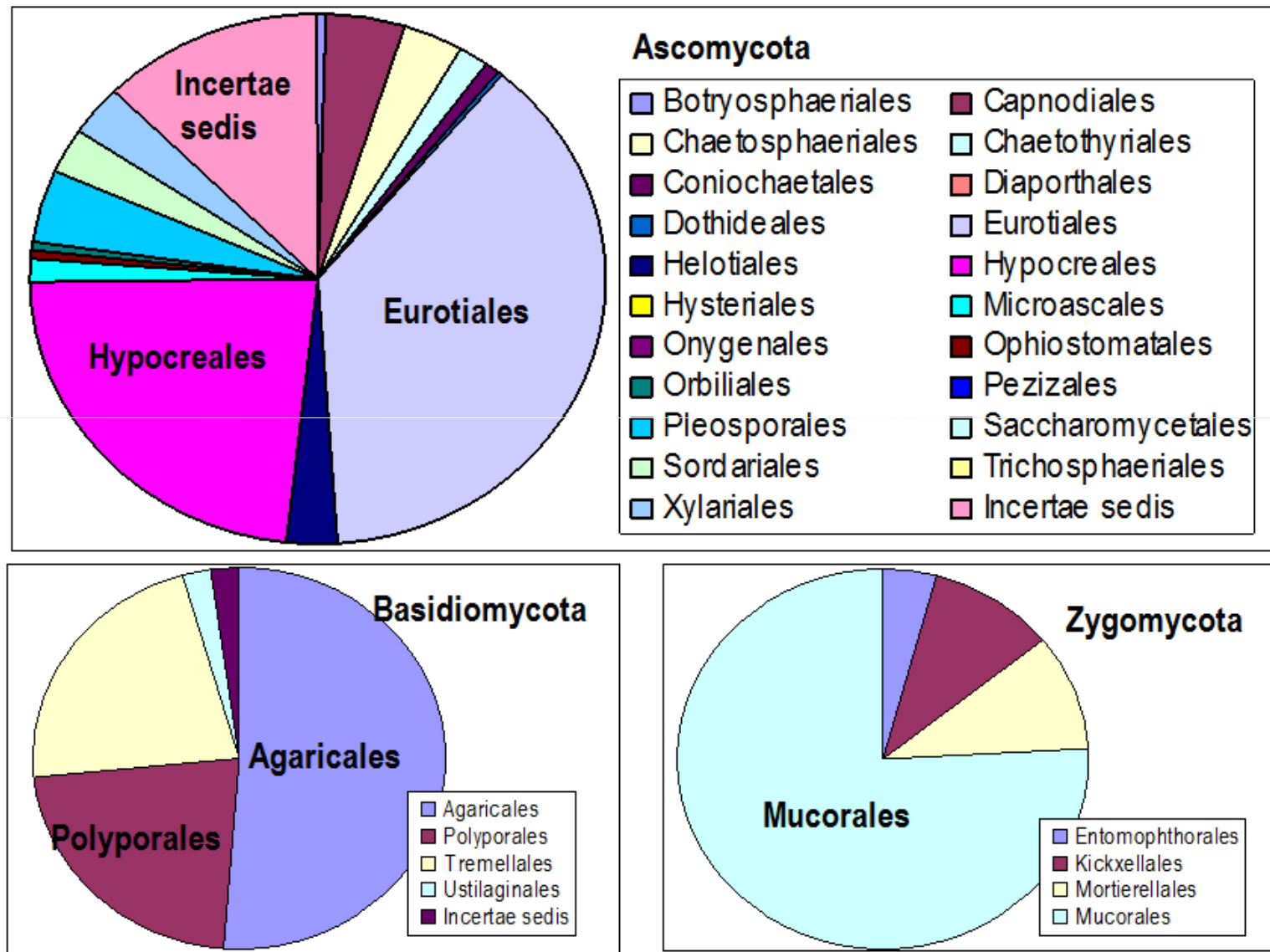
Number of Indonesian Fungi

Year	Isolated	Selected	Discarded	Storage
2003	1,376	425	2	423
2004	1,363	300	4	296
2005	1,317	824	17	807
2006	775	411	8	403
2007	742	486	146	340
2008	1,914	250	3	247
Total	7,487	2,696	180	2,516

205 genera



Taxonomic Position of Fungi Isolates (205 genera)





Abundantly Fungi Isolated Group (>10 strains; 44 genera / 205 genera: 21.5%)

Genus	strains		Genus	strains		Genus	strains
<i>Penicillium</i>	341		<i>Lecanicillium</i>	24		<i>Humicola</i>	16
<i>Aspergillus</i>	194		<i>Phoma</i>	24		<i>Coprinellus</i>	16
<i>Trichoderma</i>	132		<i>Pestalotiopsis</i>	24		<i>Pseudocercospora</i>	14
<i>Paecilomyces</i>	92		<i>Chloridium</i>	23		<i>Myrothecium</i>	12
<i>Fusarium</i>	58		<i>Talaromyces</i>	21		<i>Mariannaea</i>	11
<i>Cladosporium</i>	55		<i>Gliocladium</i>	21		<i>Pochonia</i>	11
<i>Acremonium</i>	38		<i>Ochroconis</i>	21		<i>Staphylotrichum</i>	11
<i>Clonostachys</i>	37		<i>Colletotrichum</i>	20		<i>Cylindrocarpon</i>	10
<i>Eupenicillium</i>	35		<i>Nodulisporium</i>	20		<i>Stachybotrys</i>	10
<i>Scytalidium</i>	30		<i>Absidia</i>	18		<i>Monodictys</i>	10
<i>Verticillium</i>	30		<i>Mucor</i>	18		<i>Scolecobasidium</i>	10
<i>Gonytrichum</i>	29		<i>Phialophora</i>	17		<i>Triscelophorus</i>	10
<i>Curvularia</i>	27		<i>Pseudobotrytis</i>	17		<i>Mortierella</i>	10
<i>Metarhizium</i>	25		<i>Chaetomium</i>	17		<i>Gongronella</i>	10
<i>Cunninghamella</i>	25		<i>Scopurialiopsis</i>	16			