



DiversityDescriptions

DWB-DD as RDMS
for ethnomycological datasets from African countries

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- Outline
 - Introduction
 - Database Collaboration
 - Presentation of Database
 - Conclusions
 - Perspectives
 - Acknowledgement

- Introduction

- Databases being a collection of organized information that can easily be accessed, managed and updated
- Ethnomycology inquiring into the cultural, ceremonial, and medicinal uses of mushrooms, besides their consumption as food
- The ethnodatabase having as aim to document mushroom species used by the communities in tropical Africa as food, medicine, cultural and mythological etc.

Introduction

- Why Mushroom for Databasing?
 - As food, as tonic, as medicine; the entire creation being precious



Pleurotus flabellatus
Edible and medicinal mushroom



Auricularia auricula
Edible and medicinal mushroom

Introduction



Introduction

- More Uses of Mushrooms
 - Traditional medical uses
 - e.g. *Ganoderma applanatum* as immune booster
 - *Daldinia concentrica* use to treat scars and skin disease, and for decoration
 - Cultural uses
 - As good omen e.g. *Termitomyces* sp. Use with alligator pepper to dispel evil spirits and to treat rheumatic pain
 - Sclerotia of *Pleurotus tuberregium* to treat leg poisoning and to prevent children from being initiated by mermaids ('Leingu')
 - Hallucinations, e.g. *Chlorophyllum molybides*

Introduction

- Other Uses of Mushrooms
 - Apart from being used as food and medicine
 - Mycorrhizal association
 - Decomposition of dead organic matter
 - Mycoremediation and biological control

Database Collaboration

- The Ethnodatabase Collaborators

Prof. Tonjock Rosemary
(DB Manager)

Dr. Houdanon Roel

Dr. Marieka Gryzenhout



Dr. Joyce Jefwa

Dr. Kamalebo Heritier

Presentation of Database

- Main Project, Subprojects and Descriptors

The screenshot shows the DiversityDescriptions v.4.4.0 application window. The main window title is "Termitomyces clypeatus-03". The interface includes a menu bar (Connection, Edit, Grid, Query, Data, Administration, Help), a toolbar, and a sidebar with a list of items (401-497 of 497). The main area displays a table of descriptors for "Termitomyces clypeatus-03". A dialog box titled "Please select the project for new description item:" is open, showing a list of projects including "UBTMYCethnomydesc", "UBTMYCethnomyCAdesc", "UBTMYCethnomyNAdesc", "UBTMYCethnomySAdesc", "UBTMYCethnomyEAdesc", and "UBTMYCethnomyWAdesc".

No.	Type	Descriptor name
2	text	Data set establishing date
3	categorical	Data set revising agent
4	text	Data set revising date
5	text	Reference
6	categorical	Species name
7	text	
8	categorical	
9	categorical	
10	text	
11	text	
12	categorical	
13	text	
14	categorical	Biome
15	text	Host organism taxon name
16	categorical	Substrate
17	categorical	Usage category
18	categorical	Medicinal usage type
19	categorical	Nutrient usage type
20	categorical	Cultural usage type
21	categorical	Application mode
22	categorical	Preparation mode
23	categorical	Fungus usage part

x	No.	State	Notes
<input checked="" type="checkbox"/>	1	whole fruiting body	
<input type="checkbox"/>	2	part of fruiting body	
<input type="checkbox"/>	3	mycelial colonies	
<input type="checkbox"/>	4	yeast colonies	
		others	

x	ID	Status	Notes
<input checked="" type="checkbox"/>	!	To be checked	
<input type="checkbox"/>	o	Not to be recorded	
<input type="checkbox"/>	-	Not applicable	
<input type="checkbox"/>	?	Data unavailable	
<input type="checkbox"/>	#	Not interpretable	
<input type="checkbox"/>	\$	Data withheld	
<input type="checkbox"/>	0	Missing data	

The database

● Descriptions

The screenshot shows the DiversityDescriptions v.4.4.0 web interface. The main content area displays the description for *Afroboletus luteolus*. The interface includes a left sidebar with a list of items (1-100 of 497) and a search/filter section. The main area is divided into several sections:

- Description:** Afroboletus luteolus (AID: 1090764)
- Main attributes:** A table listing various attributes and their types.
- Categorical states:** A table showing the selected state for the 'Fungus usage part' attribute.
- Status data:** A table showing the status of the description.

No.	Type	Descriptor name
2	text	Data set establishing date
3	categorical	Data set revising agent
4	text	Data set revising date
5	text	Reference
6	categorical	Species name
7	text	Vernacular names
8	categorical	Genus name
9	categorical	Family name
10	text	Index Fungorum ID
11	text	Mycobank ID
12	categorical	Country
13	text	Region
14	categorical	Biome
15	text	Host organism taxon name
16	categorical	Substrate
17	categorical	Usage category
18	categorical	Medicinal usage type
19	categorical	Nutrient usage type
20	categorical	Cultural usage type
21	categorical	Application mode
22	categorical	Preparation mode
23	categorical	Fungus usage part

x	No.	State	Notes
<input checked="" type="checkbox"/>	1	whole fruiting body	
<input type="checkbox"/>	2	part of fruiting body	
<input type="checkbox"/>	3	mycelial colonies	
<input type="checkbox"/>	4	yeast colonies	yeast colonies
<input type="checkbox"/>	5	others	

x	ID	Status	Notes
<input checked="" type="checkbox"/>	!	To be checked	
<input type="checkbox"/>	o	Not to be recorded	
<input type="checkbox"/>	-	Not applicable	
<input type="checkbox"/>	?	Data unavailable	
<input type="checkbox"/>	#	Not interpretable	
<input type="checkbox"/>	\$	Data withheld	
<input type="checkbox"/>	0	Missing data	

The database

- Descriptor – Data set establishing agent

Description: AID: ID: 1089560

Main attributes | **Descriptor view** | Continuous view | Resource links | Sample data

No.	Type	!	Descriptor name
1	categoryal	•	Data set establishing agent
2	text	•	Data set establishing date
3	categoryal		Data set revising agent
4	text		Data set revising date
5	text	•	Reference
6	text		Species name
7	text	•	Vernacular names
8	categoryal	•	Genus name
9	categoryal	•	Family name
10	text	•	Index Fungorum ID
11	text		MycoBank ID
12	categoryal	•	Country
13	text	•	Region
14	categoryal	•	Biome
15	text		Host organism taxon name
16	categoryal	•	Substrate
17	categoryal	•	Usage category
18	categoryal		Medicinal usage type
19	categoryal		Cultural usage type

Categorical states

x	No.	State	Notes
<input type="checkbox"/>	1	Gyzenhout, Maieka	
<input type="checkbox"/>	2	Houdanon, Roël	
<input type="checkbox"/>	3	Jefwa, Joyce	
<input type="checkbox"/>	4	Kamalebo, Héritier Milenge	
<input checked="" type="checkbox"/>	5	Kinge, Rosemary Tonjock	

The database

- Descriptor – Genus name

Description: AID: ID:

Main attributes | **Descriptor view** | Continuous view | Resource links | Sample data

No.	Type	!	Descriptor name
1	categorical	•	Data set establishing agent
2	text	•	Data set establishing date
3	categorical		Data set revising agent
4	text		Data set revising date
5	text	•	Reference
6	text		Species name
7	text	•	Vernacular names
8	categorical	•	Genus name
9	categorical	•	Family name
10	text	•	Index Fungorum ID
11	text		MycoBank ID
12	categorical	•	Country
13	text	•	Region
14	categorical	•	Biome
15	text		Host organism taxon name
16	categorical	•	Substrate
17	categorical	•	Usage category
18	categorical		Medicinal usage type
19	categorical		Cultural usage type

Categorical states

x	No.	State	Notes
<input type="checkbox"/>	70	Podaxis	
<input type="checkbox"/>	71	Polyporus	
<input type="checkbox"/>	72	Psathyrella	
<input type="checkbox"/>	73	Pycnoporus	
<input type="checkbox"/>	74	Rubinoletus	
<input type="checkbox"/>	75	Russula	
<input type="checkbox"/>	76	Sarcosoma	
<input type="checkbox"/>	77	Schizophyllum	
<input type="checkbox"/>	78	Tapinella	
<input type="checkbox"/>	79	Terfezia	
<input type="checkbox"/>	80	Temitomyces	
<input type="checkbox"/>	81	Timania	
<input type="checkbox"/>	82	Trametes	
<input type="checkbox"/>	83	Tremella	
<input type="checkbox"/>	84	Tricholoma	
<input type="checkbox"/>	85	Trogia	
<input type="checkbox"/>	86	Vascellum	
<input type="checkbox"/>	87	Volvariella	
<input type="checkbox"/>	88	Xercomus	

The database

- Descriptor – Family name

Description: AID: ID:

Main attributes | **Descriptor view** | Continuous view | Resource links | Sample data

No.	Type	!	Descriptor name
1	categorical	•	Data set establishing agent
2	text	•	Data set establishing date
3	categorical		Data set revising agent
4	text		Data set revising date
5	text	•	Reference
6	text		Species name
7	text	•	Vernacular names
8	categorical	•	Genus name
9	categorical	•	Family name
10	text	•	Index Fungorum ID
11	text		MycoBank ID
12	categorical	•	Country
13	text	•	Region
14	categorical	•	Biome
15	text		Host organism taxon name
16	categorical	•	Substrate
17	categorical	•	Usage category
18	categorical		Medicinal usage type
19	categorical		Cultural usage type

Categorical states

x	No.	State	Notes
<input type="checkbox"/>	23	Paxillaceae	
<input type="checkbox"/>	24	Pezizaceae	
<input type="checkbox"/>	25	Phallaceae	
<input type="checkbox"/>	26	Physalacriaceae	
<input type="checkbox"/>	27	Pleurotaceae	
<input type="checkbox"/>	28	Pluteaceae	
<input type="checkbox"/>	29	Podaxaceae	
<input type="checkbox"/>	30	Polyporaceae	
<input type="checkbox"/>	31	Psathyrellaceae	
<input type="checkbox"/>	32	Repetobasidiaceae	
<input checked="" type="checkbox"/>	33	Russulaceae	
<input type="checkbox"/>	34	Sarcoscyphaceae	
<input type="checkbox"/>	35	Sarcosomataceae	
<input type="checkbox"/>	36	Schizophyllaceae	
<input type="checkbox"/>	37	Strophariaceae	
<input type="checkbox"/>	38	Tapinellaceae	
<input type="checkbox"/>	39	Terfeziaceae	
<input type="checkbox"/>	40	Tremellaceae	
<input type="checkbox"/>	41	Tricholomataceae	

The database

- Descriptor – Biome

Description: AID: ID:

Main attributes | **Descriptor view** | Continuous view | Resource links | Sample data

No.	Type	!	Descriptor name
1	categorical	•	Data set establishing agent
2	text	•	Data set establishing date
3	categorical		Data set revising agent
4	text		Data set revising date
5	text	•	Reference
6	text		Species name
7	text	•	Vernacular names
8	categorical	•	Genus name
9	categorical	•	Family name
10	text	•	Index Fungorum ID
11	text		Mycobank ID
12	categorical	•	Country
13	text	•	Region
14	categorical	•	Biome
15	text		Host organism taxon name
16	categorical	•	Substrate
17	categorical	•	Usage category
18	categorical		Medicinal usage type
19	categorical		Cultural usage type

Categorical states

x	No.	State	Notes
<input checked="" type="checkbox"/>	1	forest	
<input type="checkbox"/>	2	savanna	
<input type="checkbox"/>	3	desert	
<input type="checkbox"/>	4	mangrove	
<input type="checkbox"/>	5	farm land	
<input type="checkbox"/>	6	lake	

The database

- Descriptor – Usage category

Description: *Lactifluus cf. rubroviolascens* AID: ID: 1089560

Main attributes | **Descriptor view** | Continuous view | Resource links | Sample data

No.	Type	!	Descriptor name
1	categorical	•	Data set establishing agent
2	text	•	Data set establishing date
3	categorical		Data set revising agent
4	text		Data set revising date
5	text	•	Reference
6	text		Species name
7	text	•	Vernacular names
8	categorical	•	Genus name
9	categorical	•	Family name
10	text	•	Index Fungorum ID
11	text		MycoBank ID
12	categorical	•	Country
13	text	•	Region
14	categorical	•	Biome
15	text		Host organism taxon name
16	categorical	•	Substrate
17	categorical	•	Usage category
18	categorical		Medicinal usage type
19	categorical		Cultural usage type

Categorical states

x	No.	State	Notes
<input checked="" type="checkbox"/>	1	nutritional	
<input type="checkbox"/>	2	medicinal	
<input type="checkbox"/>	3	mythological	
<input type="checkbox"/>	4	economic	
<input type="checkbox"/>	5	cultural	
<input type="checkbox"/>	6	mycoremediational	
<input checked="" type="checkbox"/>	7	mycorrhizal	
<input type="checkbox"/>	8	decorational	
<input type="checkbox"/>	9	recreational	
<input type="checkbox"/>	10	poisonous	
<input type="checkbox"/>	11	others	

Presentation of Database

- Optionally: Excel Sheets for Alternative Data Import

The screenshot shows an Excel spreadsheet with the following columns and data:

#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13	#14	#15	#16
Date of establishment	Ref.	Ref.	Reference	Species name	Vernacular names	Genus name	Family name			Country	Region	Biome	Host organism	Accession name	
1	1	1	1			Amanita	Amanitaceae			Cameroon		Forest			
2	2	2	2			Afrotolietus	Agaricaceae			Kenya		Forest			
3	3	3	3	Fungus (fruiting body) of Amanita (fruiting body) and and		Amanita	Agaricaceae			Tanzania		Savanna			
4	4	4	4	Karungu (fruiting body)		Agaricus	Agaricaceae			Cameroon		Forest			
5	5	5	5	Wakoo (fruiting body)		Bolus	Bolusaceae			Nigeria		Farm land			
6	6	6	6			Cantharellus	Cantharellaceae			Congo, Democratic Republic of the		Forest			
7	7	7	7			Cookea	Sarcoscyphaceae			Cameroon		Forest			
8	8	8	8			Dalman	Xylariaceae			Cameroon		Forest			

Presentation of Database

- Optionally: Excel Sheets for Alternative Data Import

The screenshot shows an Excel spreadsheet with the following data:

	#16. Substrate	#17. Usage category	#18. Medicinal usage type	#19. Nutrient usage type	#20. Cultural usage type	#21. Application mode	#22. Preparation mode	#23. Fungus usage part
4	4. soil	5. cultural	fever reduction		1. good omen	6. infusion	4. soup	1. whole fruiting body
6	4. soil	1. nutritional					1. boiling	1. whole fruiting body
8	4. soil	1. nutritional					1. boiling	1. whole fruiting body
10	4. soil	5. cultural					1. boiling	1. whole fruiting body
12	5. dung	1. nutritional					2. frying	1. whole fruiting body
14	4. soil	1. nutritional					3. stemming	1. whole fruiting body
16	2. dead wood	2. medicinal	20. others			2. concoction	1. boiling	1. whole fruiting body
18	1. living wood	2. medicinal	12. hypertension			1. powder	1. boiling	1. whole fruiting body
20	2. dead wood	2. medicinal	19. skin infections			1. powder	1. boiling	1. whole fruiting body
22	6. insect	4. economic					4. soup	1. whole fruiting body

Conclusion

- Conclusion

- As of October 2021, database containing about 700 species
- Database being important to mycologists, communities, natural product chemists and many others

Perspectives

- Perspectives

- Continue adding more species into the database
- Update existing species in the database
- Update descriptors in the database
- Monthly meetings with collaborators
- Publish results from database in a database journal

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- All collaborators

