Supplementary Table S1. Physicochemical parameters of the lake sediment samples used in the study

Parameter	Unit	Value	Interpretation
Texture	-	-	clay loam
Calcareousness	-	-	Very high
pH		7.35	neutral
EC	dS/m	1.87	Critical for germination
Available nitrogen	Kg/ha	106	low
Available phosphorus	Kg/ha	59	High
Available potassium	Kg/ha	312	High
Organic carbon	g/Kg	6.46	Medium
Available iron	mg/L	12.10	Sufficient
Available manganese	mg/L	16.67	Sufficient
Available zinc	mg/L	0.85	deficient
Available copper	mg/L	4.18	sufficient
Total nitrogen	%	0.11	-

Supplementary Table S3. Screening results of the fungal strains for the production of different enzymes

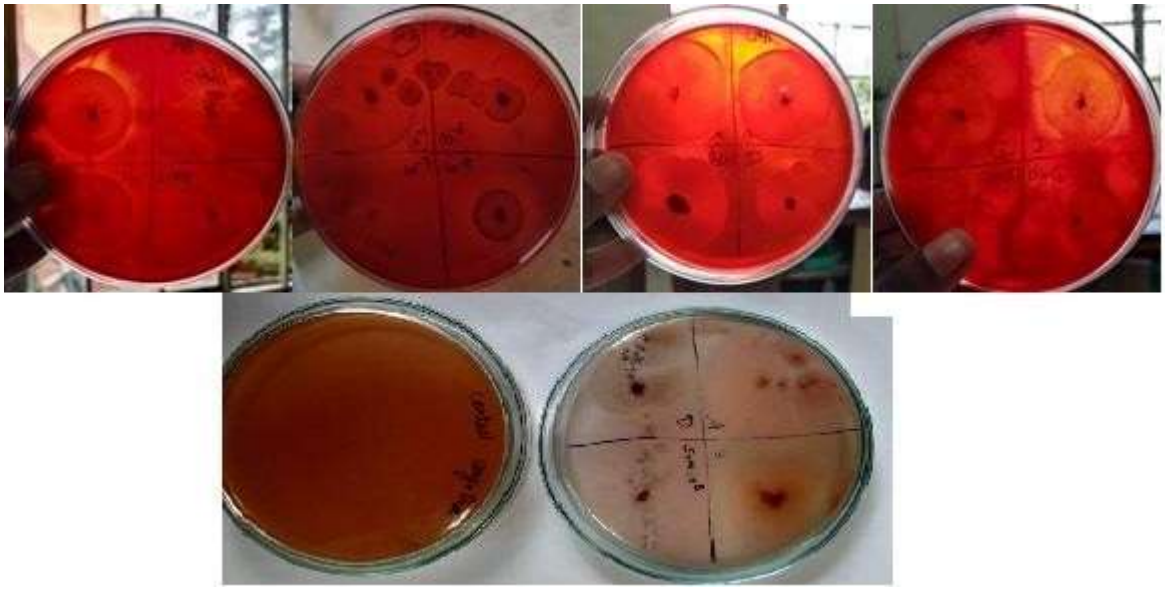
Fungal strain	Protease	Caseinase	Cellulose	Urease	Esterase	β-glucosidase
A	-	-	-	-	-	-
B	-	-	-	-	-	+
C	-	-	-	-	-	-
D	-	-	-	-	-	-
H1	-	-	-	-	-	-
H2	-	-	-	-	-	-
H3	-	-	-	-	-	+
I	-	-	-	-	+	+
J	-	-	-	-	-	-
UN 2	-	-	-	-	-	-
UN 3	-	-	-	-	-	+
S+M 108	-	-	-	-	-	-
M3 101	-	-	-	-	-	+
M3 106	-	-	-	+	-	-
M3 107	-	-	-	-	-	-
M3 108	-	-	-	+	-	+

Supplementary Table S4. Screening results for the production of lignin-degrading enzymes

Fungal strain	Bromophenol blue	Methylene blue	Phenol red	Staining lignin	Congo red	Guaiacol	Tannic acid
A	-	-	-	+	+	-	+
B	-	+	-	+	-	-	+
D	+	-	-	+	-	-	+
H	+	+	-	+	-	-	-
I	+	-	+	+	+	-	+
J	+	-	-	+	+	-	-
UN2	-	-	+	+	+	-	+
UN3	+	-	-	+	+	-	-
S+M10^{8}	+	-	-	+	+	-	+
M3 10^{1}	-	+	+	+	-	-	+
M3 10^{6}	-	-	-	+	-	+	+
M3 10^{7}	-	-	-	-	-	-	+
M3 10^{8}	-	+	-	-	+	-	+

Supplementary Figure S1. Presence and absence of clearance zones on Methylene blue agar plates by fungal isolates

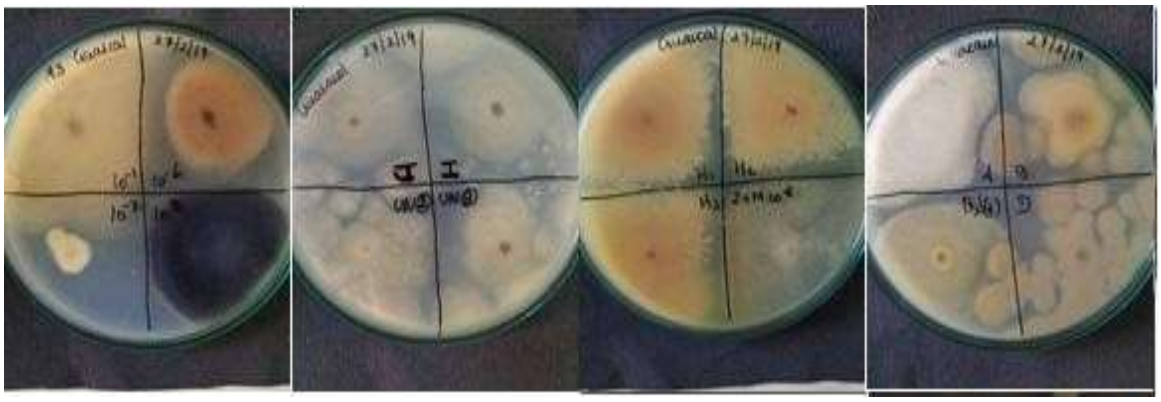
Supplementary Figure S2. Presence and absence of zone in Congo red plates by fungal isolates



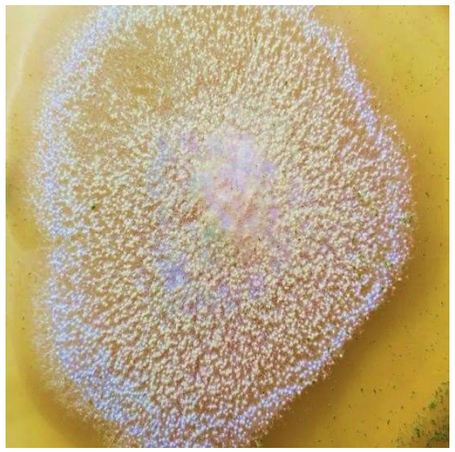
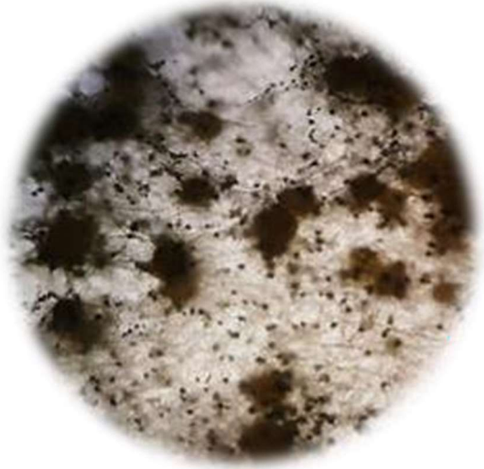
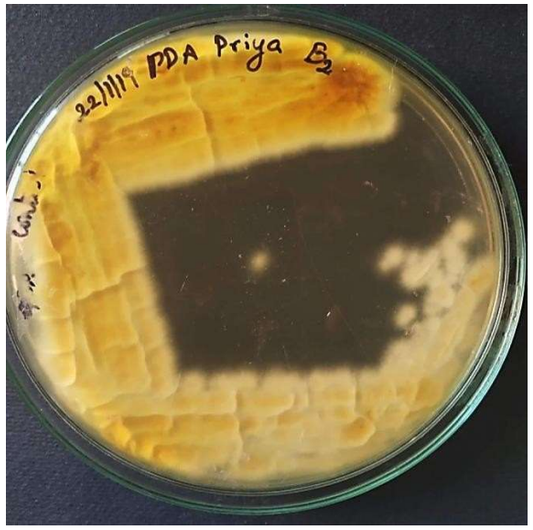
Supplementary Figure S3. Presence and absence of decolorization in Bromophenol blue plates by fungal isolates

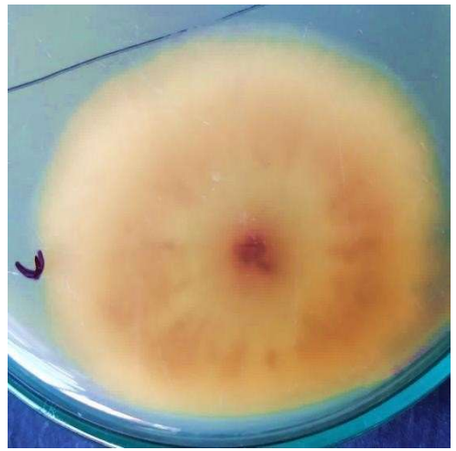
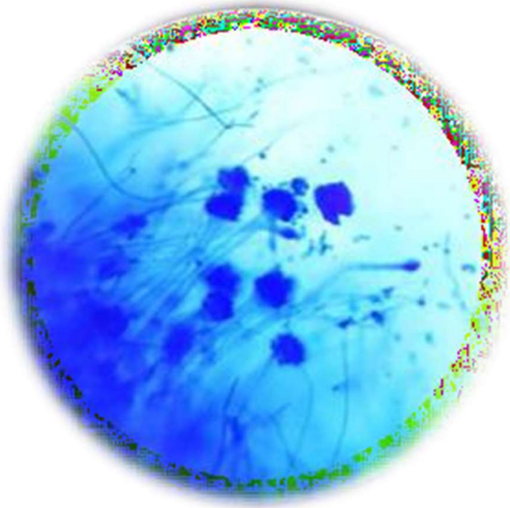
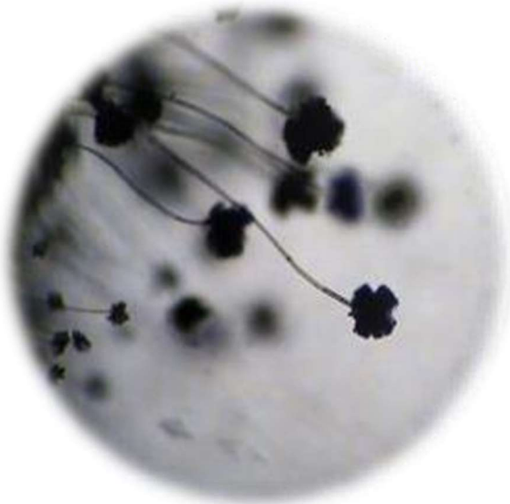
Supplementary Figure S4. Growth of fungal strains utilizing Tannic acid as sole carbon source in Mineral Salt Medium.

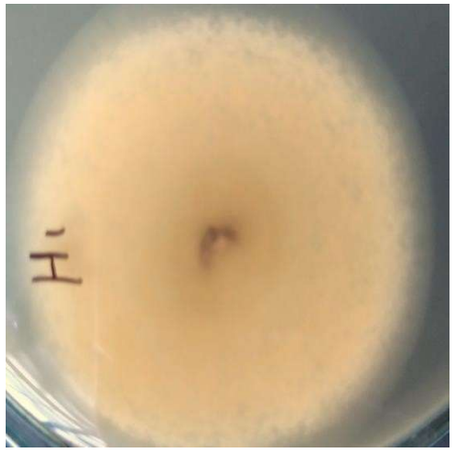
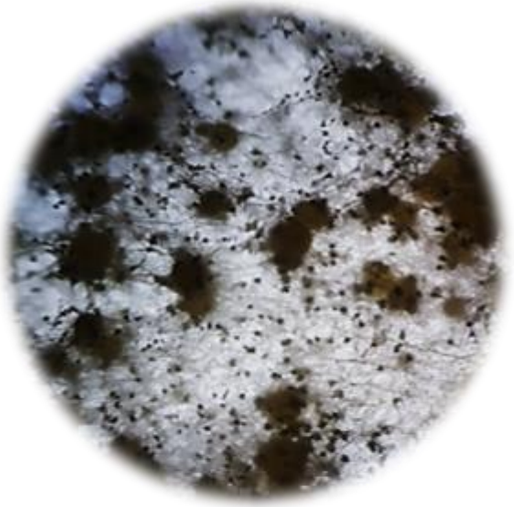
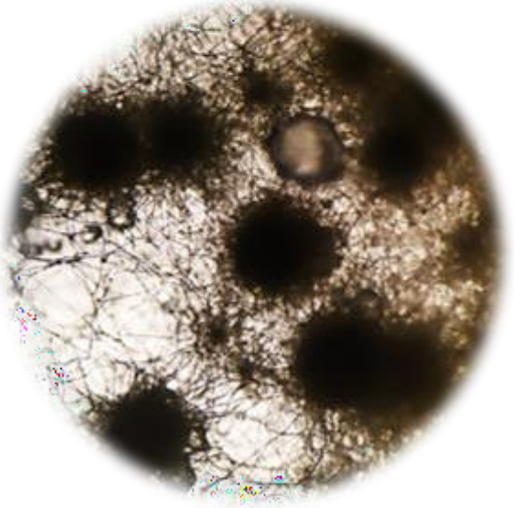
Supplementary Figure S5 Growth of fungal strains utilizing Guaiacol as sole carbon source in Mineral Salt Medium

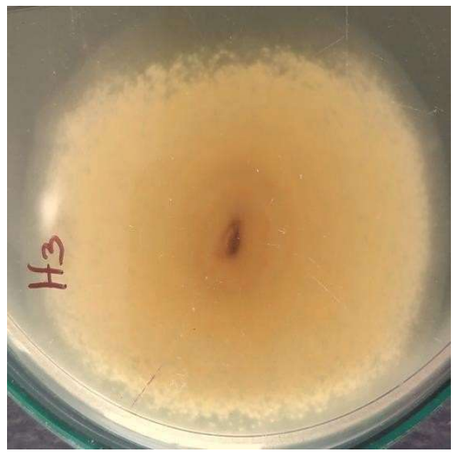
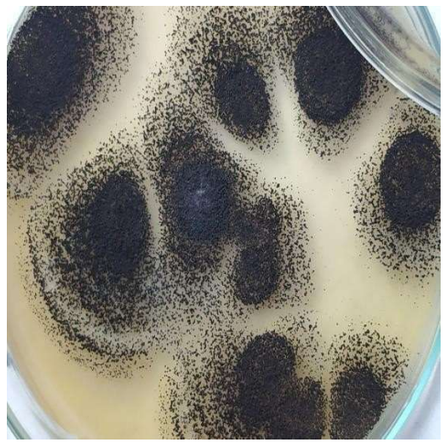
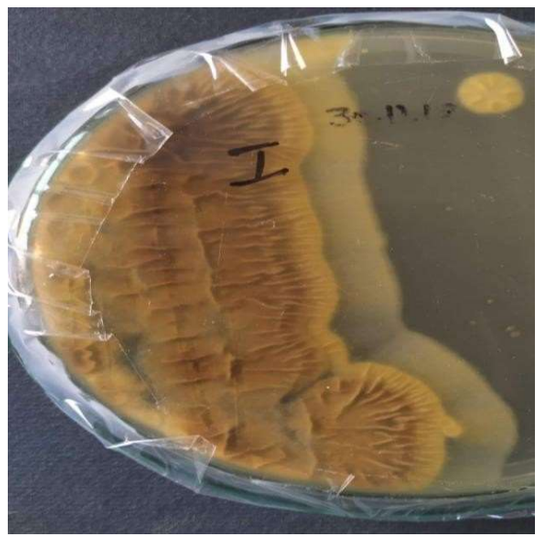
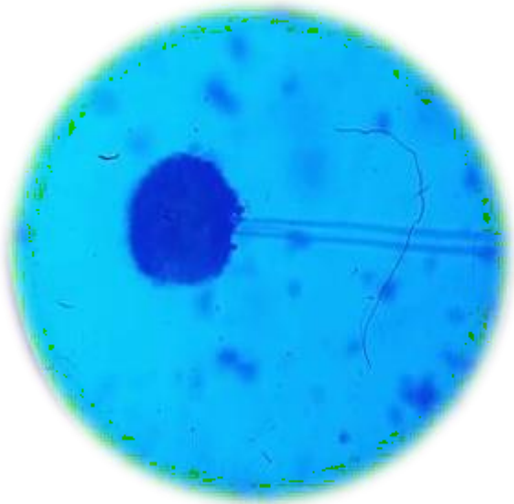


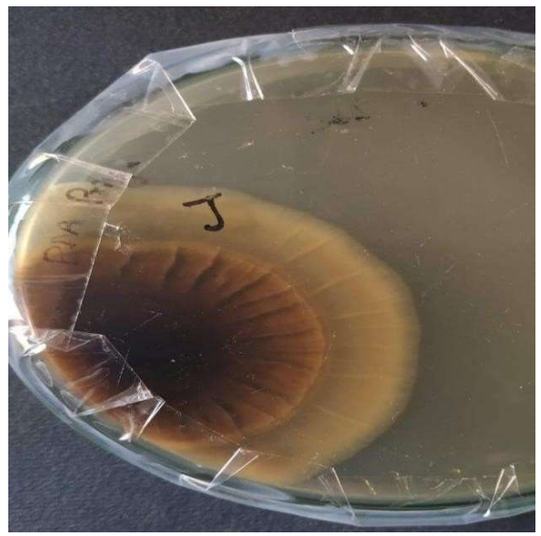
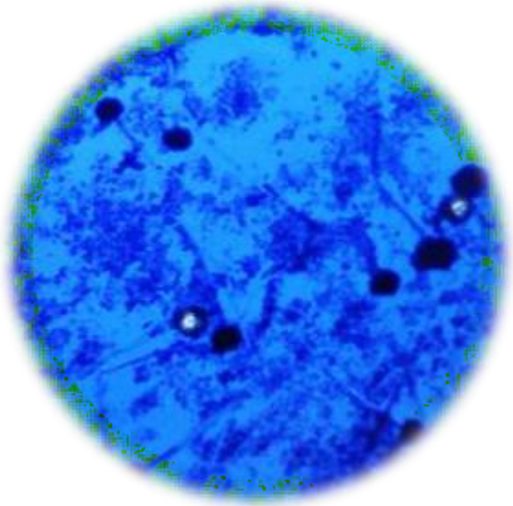
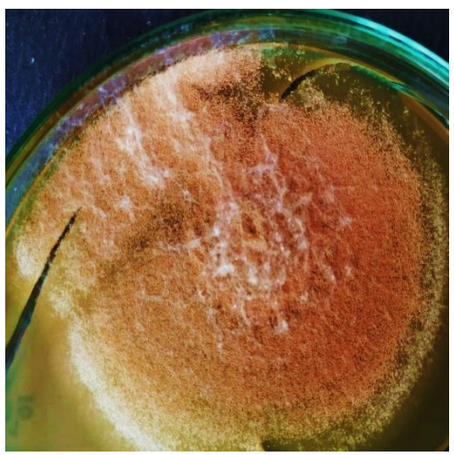
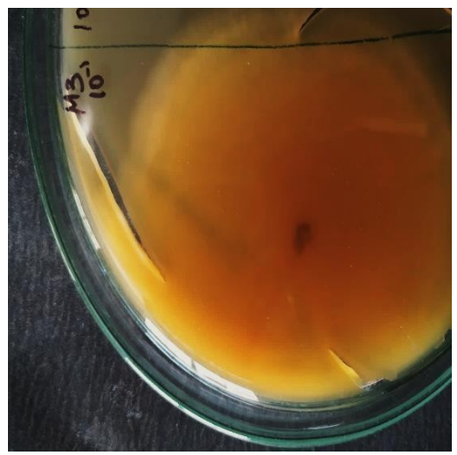
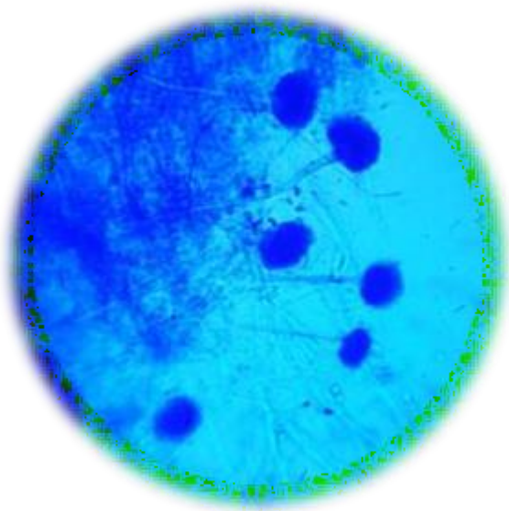
Supplementary Table S2 Colony morphology of fungal strains on PDA plates (obverse and reverse view) and microscopic view (40X)

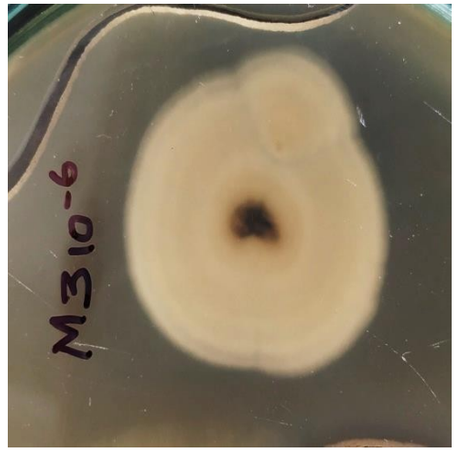
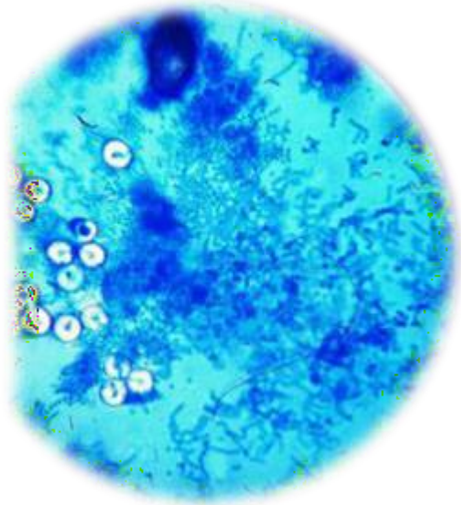
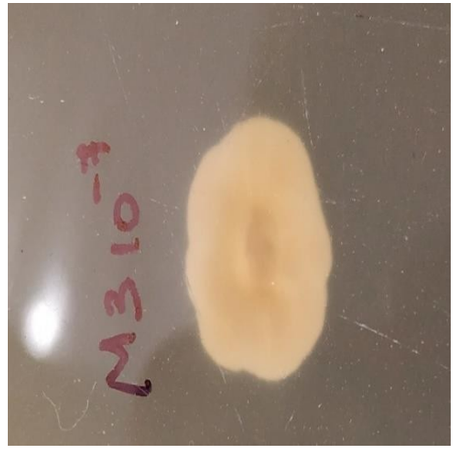
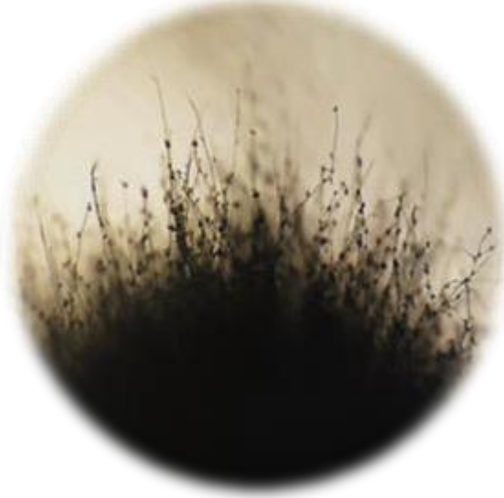
Fungal strain	Colony Morphology on PDA plate		Spore arrangement	Tentative identity
	Obverse view	Reverse view		
A				***Eurotium herbariorum (A. glaucus)***
B				***Aspergillus terreus***

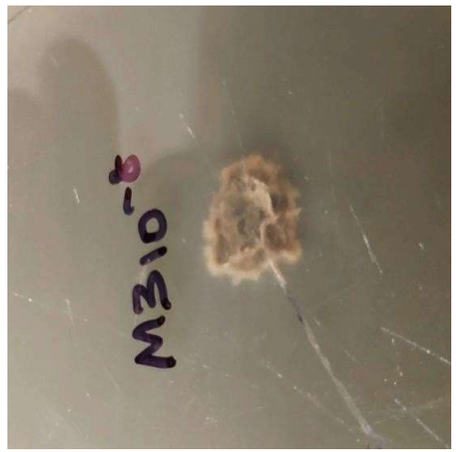
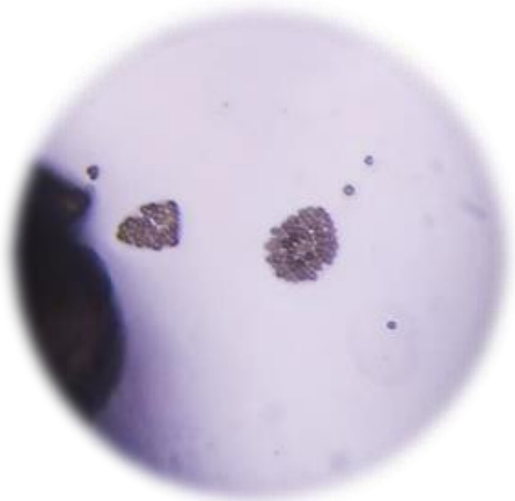
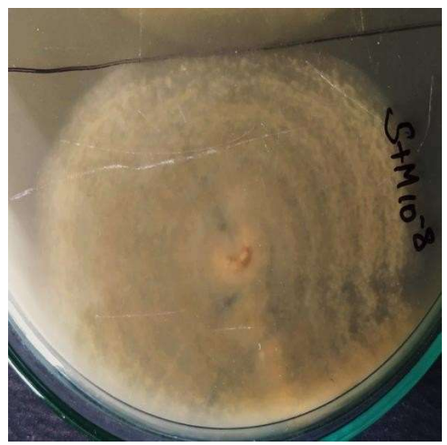
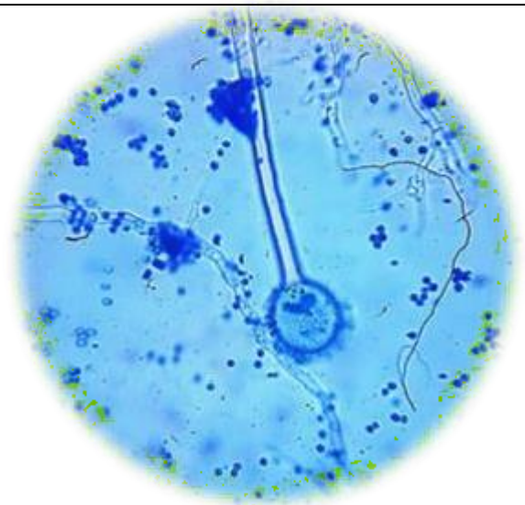
C				***Aspergillus fumigatus***
D2				***Aspergillusniger***

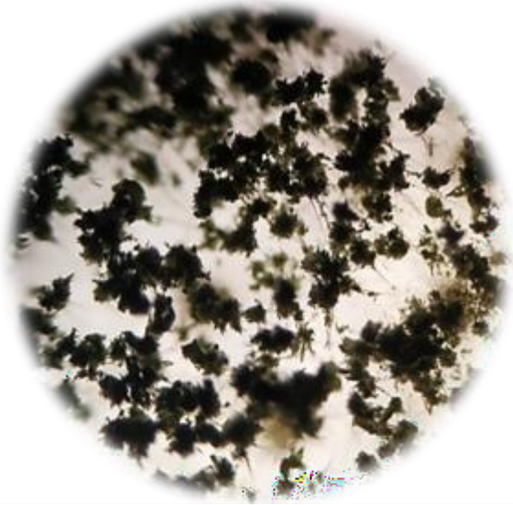
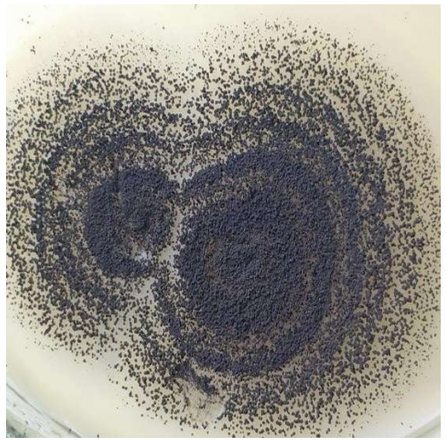
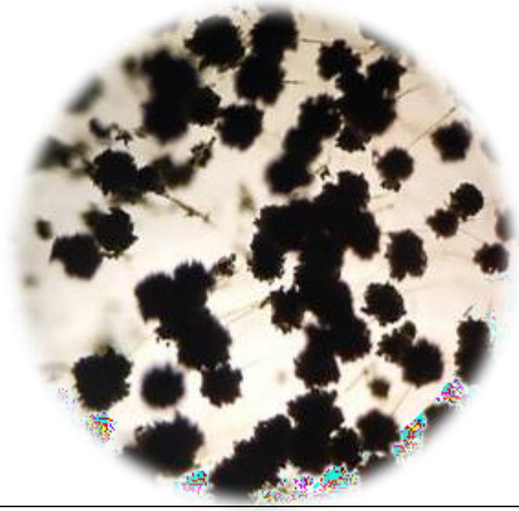
H1				***Eurotium herbariorum (A.glaucus)***
H2				***Eurotium herbariorum (A.glaucus)***

H3				***Eurotium herbariorum (A.glaucus)*** **allomorph**
I				***Aspergillusniger***

J				***Aspergillusniger***
M1				***Aspergillus terreus***

M6				***Aspergillus (Emericella) nidulans***
M7				***Trichoderma viride***

M8				NA
SM108				***Aspergillusflavus***

UN2				***Aspergillusflavus***
UN3				***Aspergillus niger***