

Groupings of *Saprolegnia* species recognized by Johnson *et al.* 2002
based on predominant features
[SAPgroups.doc]
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type species *S. ferax* (Gruith.) Thuret

Eccentric oospores only (see page 2)

S. anisopora
S. eccentrica
S. richteri
S. luxurians

Centric oospores only (see page 3)

S. hypogyna
S. turfosa
S. glomerata
S. torulosa
S. litoralis

Subcentric oospores only (see page 4)

S. truncate
S. asterophora
S. australis

Subeccentric oospores only (see page 5)

S. subeccentrica
S. blelhamensis

Possessing both centric and subcentric oospores (see pages 6-7)

S. irregularis
S. ferax
S. diclina
S. itoana
S. unispora
S. uliginosa (subcentric rare)
S. furcata (subcentric rare)
S. terrestris (centric rare)
S. megasperma (centric rare)

Saprolegnia species having only eccentric oospores

Species

Predominant characters

<i>S. anisospora</i>	3 distinctive size classes of zoospores visible in the sporangia (autapomorphic character within genus); renewal by internal proliferation, cymose branching or basipetal; pitting under antheridium only (rarely elsewhere)
<i>S. eccentrica</i>	rarely exhibits internal proliferation, no antheridia; sympodial renewal (occasionally basipetal, rarely internal proliferation); oogonia lateral (rarely terminal)
<i>S. richteri</i>	antheridia present in about ½ of oogonia, generally 2 to 3 oospores; renewal by internal proliferation or sympodial; oogonia lateral and globose; unpitted oogonia; oogonia smooth or with a few irregular evaginations; antheridia monoclinal or declinal
<i>S. luxurians</i>	generally one oospore; antheridia monoclinal, declinal or androgynous when present; renewal by internal proliferation or cymose branching (occasionally basipetal); oogonia lateral (rarely terminal or intercalary); oogonal pitting moderate or inconspicuous

Saprolegnia species having only centric oospores

<u>Species</u>	<u>Distinctive characters</u>
<i>S. hypogyna</i>	renewal by internal proliferation (rarely sympodial); antheridia hypogynous
<i>S. turfosa</i>	renewal by internal proliferation only; antheridia androgynous

<i>S. glomerata</i>	renewal by internal proliferation; antheridia androgynous and monoclinal (rarely diclinous) ; antheridia usually contorted; short, contorted hyphal branches
<i>S. torulosa</i>	renewal by internal proliferation or basipetal or cymose branching; antheridia diclinous (infrequently androgynous) ; most isolates have some (?) crenulate oogonia
<i>S. litoralis</i>	renewal by internal proliferation only; sporangia sparse; antheridia, androgynous or monoclinal (very rarely diclinous)

<u>Species</u>	<u>Distinctive Characters</u>
<i>S. truncata</i>	<i>Saprolegnia</i> species having only subcentric oospores oogonia having stout, prominent, truncate projections; antheridia rare ; oogonia usually with a single oospore, walls unpitted
<i>S. asterophora</i>	Oogonia unpitted and having papillate projections, usually containing one or two oospores; antheridia androgynous (rarely monoclinal, very rarely diclinous)
<i>S. australis</i>	oogonia pitted and containing (1-) 4-12 (-32) oospores per oogonium; antheridia predominantly diclinous

Saprolegnia species having only subeccentric oospores

<u>Species</u>	<u>Distinctive characters</u>
<i>S. subeccentrica</i>	mycelium delicate; antheridia sparse ; oogonia unpitted, terminal (occasionally lateral, rarely intercalary), densely papillate or with cylindrical, curved, irregular or bifurcate ornaments each rounded at the apex, containing 1-2 (-4) oospores; renewal by internal proliferation or basipetal or sympodial
<i>S. blelhamensis</i>	mycelium delicate; antheridia absent ; oogonia unpitted and densely or sparsely papillate or nearly smooth, containing 1-3 (-12) oospores; renewal by internal proliferation only

Saprolegnia species possessing both centric and subcentric oospores

Subcentric oospores rare:

<u>Species</u>	<u>Distinctive characters</u>
<i>S. uliginosa</i>	Oogonial pitting under antheridium only, lateral (rarely terminal); antheridia mostly monoclinal ; renewal by internal proliferation (rarely basipetal)
<i>S. furcata</i>	Oogonial stalks usually coiled, bent or irregular, and 1-6 times the diameter of the oogonium in length, lateral (occasionally terminal, unpitted or sparsely pitted, smooth; antheridial branches usually twisted, predominantly androgynous (rarely otherwise) ; renewal by internal proliferation or by cymose branching

Centric oospores rare:

<u>Species</u>	<u>Distinctive characters</u>
<i>S. terrestris</i>	oogonia pitted or unpitted; antheridia androgynous (infrequently monoclinal) and near the oogonium ; oospores (1-) 2-11 (-18) per oogonium
<i>S. megasperma</i>	oogonia pitted or unpitted generally containing one large oospore; antheridia when present monoclinal or diclinal

Centric and subcentric oospores in approximately equal proportions:

<u>Species</u>	<u>Distinctive characters</u>
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<i>S. irregularis</i>	oogonia irregularly shaped and with conspicuous pitting; antheridial cells hypogynous ; fertilization tubes profusely branched within the oogonium
<i>S. ferax</i>	oogonial pitting abundant and conspicuous; antheridia monoclinal or androgynous (rarely diclinal)
<i>S. diclinal</i>	oogonial walls pitted or unpitted; antheridia mostly diclinal
<i>S. itoana</i>	antheridia mostly androgynous when present ; oogonia contain 1 (-2-4) oospores
<i>S. unispora</i>	oogonial walls pitted or unpitted, often in glomerulate clusters, usually containing one large oospore; antheridia absent