

Gymnosporangium

From Wikipedia, the free encyclopedia

Gymnosporangium is a genus of heteroecious plant-pathogenic fungi which alternately infect members of the family Cupressaceae, primarily species in the genus *Juniperus* (junipers), and members of the family Rosaceae in the subfamily Maloideae (apples, pears, quinces, shadbush, hawthorns, rowans and their relatives). According to the *Dictionary of the Fungi* (10th edition, 2008), there are about 57 species in the genus.^[1]

In junipers (the primary hosts) (see photo), some species of the fungus form a ball like gall about 2–4 cm in diameter which produces a set of orange tentacle-like spore tubes called telial horns. These horns expand and have a jelly like consistency when wet. In other species the telia are produced directly from the bark of the juniper with no obvious gall formation or swelling^[2] such as in *G. clarvariforme* . The spores are released and travel on the wind until they infect an apple, pear, or hawthorn tree.

On the secondary hosts, the fungus produces yellowish depressions on the leaves. It also infects the fruit, which grows whitish tubes like a Medusa head. These are the spore tubes. The spores must then infect a juniper to complete the life cycle.

The fungus does not cause serious damage to junipers, but apple and pear trees can suffer serious loss of fruit production due to the effects of the fungus. Due to the economic impacts of the rusts in some areas where orchards are of commercial importance, some regions have attempted to ban the planting of and/or eradicate the coniferous hosts.^[3]

Selected species

Gymnosporangium



Gymnosporangium juniperii

Scientific classification

| | |
|-----------|--------------------------------------------------------|
| Kingdom: | Fungi |
| Division: | Basidiomycota |
| Class: | Pucciniomycetes |
| Order: | Pucciniales |
| Family: | Pucciniaceae |
| Genus: | <i>Gymnosporangium</i> R.Hedw. ex DC. (1805) |

Type species

Gymnosporangium fuscum
DC. (1805)

| Species | Primary host | Secondary host | Common name |
|------------------------------------------------------------|--------------------------------------------|-----------------------------------------------------------------------|------------------------------------------------------------------------------------|
| <i>Gymnosporangium amelanchieris</i> | <i>Juniperus</i> sect. <i>Juniperus</i> | <i>Amelanchier</i> | |
| <i>Gymnosporangium clavariiforme</i> | <i>Juniperus</i> sect. <i>Juniperus</i> | <i>Amelanchier</i> , <i>Crataegus</i> , <i>Pyrus</i> | Crown of Thorns ^[4] |
| <i>Gymnosporangium clavipes</i> | <i>Juniperus</i> | <i>Crataegus</i> , <i>Cydonia</i> | Cedar-quince rust, quince rust ^[5] |
| <i>Gymnosporangium confusum</i> | <i>Juniperus</i> | <i>Crataegus</i> , <i>Cydonia</i> , <i>Mespilus</i> , <i>Pyrus</i> | |
| <i>Gymnosporangium cornutum</i> | <i>Juniperus</i> sect. <i>Juniperus</i> | <i>Sorbus</i> subgen. <i>Sorbus</i> | Mountain ash juniper rust ^[5] |
| <i>Gymnosporangium cupressi</i> | <i>Cupressus</i> | <i>Amelanchier</i> | |
| <i>Gymnosporangium dobroznakovii</i> | <i>Juniperus</i> sect. <i>Juniperus</i> | <i>Pyrus</i> | |
| <i>Gymnosporangium fuscum</i> (syn. <i>G. sabinae</i>) | <i>Juniperus</i> sect. <i>Sabina</i> | <i>Pyrus</i> | Pear rust, European pear rust, or pear trellis rust ^{[5][6]} |
| <i>Gymnosporangium fuisporum</i> | <i>Juniperus</i> sect. <i>Sabina</i> | <i>Cotoneaster</i> | |
| <i>Gymnosporangium gaeumannii</i> | <i>Juniperus</i> <i>communis</i> | (not known) | |
| <i>Gymnosporangium globosum</i> | <i>Juniperus</i> | <i>Crataegus</i> | Cedar-hawthorn rust, American hawthorn rust ^{[5][6]} |
| <i>Gymnosporangium gracile</i> | <i>Juniperus</i> | <i>Amelanchier</i> , <i>Crataegus</i> , <i>Cydonia</i> | |
| <i>Gymnosporangium harknessianum</i> | <i>Juniperus</i> | <i>Amelanchier</i> | |
| <i>Gymnosporangium inconspicuum</i> | <i>Juniperus</i> | <i>Amelanchier</i> | |
| <i>Gymnosporangium juniperi-virginianae</i> | <i>Juniperus</i> | <i>Malus</i> | Cedar-apple rust ^[5] |
| <i>Gymnosporangium kernianum</i> | <i>Juniperus</i> | <i>Amelanchier</i> | Kern's pear rust ^[6] |
| <i>Gymnosporangium libocedri</i> | <i>Calocedrus</i> | <i>Amelanchier</i> | Pacific Coast pear rust, ^[6] Incense cedar broom rust ^[5] |
| <i>Gymnosporangium malyi</i> | (not known) | <i>Crataegus</i> | |
| <i>Gymnosporangium multiporum</i> | <i>Juniperus</i> | (not known) | |
| <i>Gymnosporangium nelsonii</i> | <i>Juniperus</i> | <i>Amelanchier</i> | Witches broom rust, ^[5] Rocky Mountain pear ^[6] |

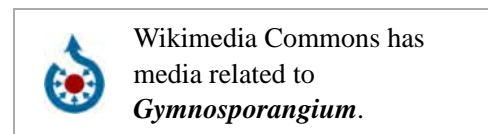
| | | | |
|-----------------------------------------------|--------------------------------------------|-----------------------------------------------------|-----------------------------------------------------------------------|
| <i>Gymnosporangium nidus-avis</i> | <i>Juniperus</i> sect. <i>Sabina</i> | <i>Crataegus</i> , <i>Cydonia</i> , <i>Malus</i> | Juniper witches' broom rust ^[5] |
| <i>Gymnosporangium sabinae</i> | <i>Juniperus</i> | <i>Pyrus</i> , <i>Malus</i> , <i>Crataegus</i> | Pear rust, European pear rust, or pear trellis rust ^[5] |
| <i>Gymnosporangium torminalis-juniperinum</i> | <i>Juniperus</i> sect. <i>Juniperus</i> | <i>Sorbus torminalis</i> | |
| <i>Gymnosporangium tremelloides</i> | <i>Juniperus</i> sect. <i>Juniperus</i> | <i>Cydonia</i> , <i>Malus</i> , <i>Sorbus</i> | |
| <i>Gymnosporangium yamadae</i> | <i>Juniperus</i> | <i>Malus</i> | Japanese apple rust ^[7] |

References

- Kirk PM, Cannon PF, Minter DW, Stalpers JA (2008). *Dictionary of the Fungi* (10th ed.). Wallingford, UK: CABI. p. 298. ISBN 978-0-85199-826-8.
 - Brand, Bert; Brand, Gill; Shattock, Richard (October 2006). "Sorting out *Gymnosporangium* species – the aecial stage". *Field Mycology*. **7** (4): 123–127. doi:10.1016/S1468-1641(10)60574-9.
 - Cedar Apple Rust - Plant of the Week (http://www.arhomeandgarden.org/plantoftheweek/articles/cedar_apple_rust_6-02-06.htm)
 - Gymnosporangium cornutum/clavariforme* (<https://sites.google.com/site/scottishfungi/species-profiles/gymnosporangium-cornutum-clavariforme>), Scottish Fungi
 - FullFungi List (<http://www.prevalentfungi.org/fungi.cfm>), Widely Prevalent Fungi of the United States
 - Diseases of Pear (<http://www.apsnet.org/publications/commonnames/Pages/Pear.aspx>), APS
 - Gymnosporangium yamadae* (http://www.eppo.int/QUARANTINE/fungi/Gymnosporangium_yamadae/GYMNYA_ds.pdf), Data sheets on Quaranteen Pests
- Phillips, D.H., & Burdekin, D.A. (1992). *Diseases of Forest and Ornamental Trees*. Macmillan.
 - Scharpf, R.F., ed. (1993). *Diseases of Pacific Coast Conifers*. USDA Forest Service Agricultural Handbook 521.

External links

- Forestry Images: *Gymnosporangium* (<http://www.forestryimages.org/browse/genus.cfm?id=Gymnosporangium>)
- Photo of *Gymnosporangium sabinae* (http://www.uni-essen.de/botanik/Exkursionen/Gymnosporangium_sabinae.jpg) on *Juniperus sabina*



Retrieved from "https://en.wikipedia.org/w/index.php?title=Gymnosporangium&oldid=750524314"

Categories: Basidiomycota genera | Pucciniales

- This page was last modified on 20 November 2016, at 08:13.
- Text is available under the Creative Commons Attribution-ShareAlike License; additional terms may apply. By using this site, you agree to the Terms of Use and Privacy Policy. Wikipedia® is a registered trademark of the Wikimedia Foundation, Inc., a non-profit organization.

