

Home > Journal > Earth & Environmental Sciences > AS

[Indexing](#) [View Papers](#) [Aims & Scope](#) [Editorial Board](#) [Guideline](#) [Article Processing Charges](#)

AS > Vol.3 No.2, March 2012

OPEN ACCESS

## *Cladosporium*: Causal agent of scab in purple passion fruit or gulupa (*Passiflora edulis* Sims.)

PDF (Size: 4102KB) PP. 299-305 DOI: 10.4236/as.2012.32034

### Author(s)

Donald Riascos, Ivonne Quiroga, Rafael Gómez, Lilliana Hoyos-Carvajal

### ABSTRACT

The Scab of purple passion fruit or gulupa (*Passiflora edulis* Sims.) is a serious disease, affecting all aerial organs of the plant, but also to reducing the visual quality of the fruits, which reduces export production. To determine the primary causal agent of disease in Colombia, associated microorganisms were isolated from scab lesions on stems, leaves, flowers and fruits, recovering in PDA. Obtaining *Cladosporium*, *Colletotrichum* and *Botrytis*. *Cladosporium* had the highest frequency of fungal isolates. 15 strains were evaluated for their pathogenicity on fruits and leaves of gulupa in laboratory and greenhouse conditions. 9 strains caused symptom expression at 95% humidity and 17° C - 20° C, validating *Cladosporium* as causal agent of gulupa scab. For those pathogenic strains, were determinate incubation and latency periods in leaves (7 - 11 and 8 - 12 DPI) and fruits (6 - 10 and 8 - 12 DPI) revealing differences or virulence levels in the pathogen populations.

### KEYWORDS

Pathogenicity; Passiflora; Incubation; Latency

### Cite this paper

Riascos, D. , Quiroga, I. , Gómez, R. and Hoyos-Carvajal, L. (2012) *Cladosporium*: Causal agent of scab in purple passion fruit or gulupa (*Passiflora edulis* Sims.). *Agricultural Sciences*, 3, 299-305. doi: 10.4236/as.2012.32034.

### References

- [1] Cunha, M. (1996) Recursos genéticos e modificacoes em método de selecao para produtividade em maracujá. *Revista Brasileira de Fruticultura*, 18, 413-423.
- [2] Manica, I. (1997) Maracujazeiro taxonomia, anatomia e morfología. In: Sao José, A., Bruckner, C., Manica, I. and Hoffman, M. Eds., *Maracuja: Temas Seleccionados (1) Melhoramento, Morte Prematura, Polinizacao e Taxonomia*, Cinco Continentes, Porto Alegre, 7-24.
- [3] Zibadi, S. and Watson, R. (2004) Passion fruit (*Passiflora edulis*): Composition, efficacy and safety. *Evidence-Based Integrative Medicine*, 3, 183-187. doi: 10.2165/01197065-200401030-00005
- [4] Donadio, L. (1983) Frutíferas tropicais de valor potencial. In: Donadio, L. Ed., *Fruticultura Tropical*, FCAV/UNESP, Jaboticabal, 20-30.
- [5] Ulmer, T. and Mac Dougal, J. (2004) *Passiflora: Passion flowers of the world*. Timber Press, Portland, pp. 68-72.
- [6] Camelo, V. (2010) Detección e identificación de los virus patógenos de cultivos de gulupa (*Passiflora edulis* Sims.) en la región del Sumapaz. Tesis de maestría, Universidad Nacional de Colombia, sede Bogotá.
- [7] Benítez, S. (2010) Caracterización del agente etiológico de la enfermedad denominada "mancha de aceite" en cultivos de gulupa (*Passiflora edulis* Sims.) en zonas productoras de Colombia. Tesis de maestría, Universidad Nacional de Colombia, sede Bogotá.

- [Open Special Issues](#)
- [Published Special Issues](#)
- [Special Issues Guideline](#)

[AS Subscription](#)

[Most popular papers in AS](#)

[About AS News](#)

[Frequently Asked Questions](#)

[Recommend to Peers](#)

[Recommend to Library](#)

[Contact Us](#)

Downloads:	145,384
Visits:	316,984

Sponsors, Associates, and Links >>

- [2013 Spring International Conference on Agriculture and Food Engineering \(AFE-S\)](#)

- [8] Ortiz, E., Farfán, L., Riascos, D., Benítez, S., Camelo, V., Ortíz, D., Castillo, S. And Moya, J. (2010) Avances del Grupo de investigación en Gulupa: Facultad de Agronomía de la Universidad Nacional, Sede Bogotá.
- [9] Rivero, M. (2000) Reconocimiento y diagnóstico de enfermedades de plantas: Guías para las prácticas de laboratorio de la asignatura de fitopatología general, 21-31.
- [10] Galindo, G. (2009) Escala de desarrollo para flor y fruto para el cultivo de gulupa (*Passiflora edulis* Sims.). Tesis de pregrado. Universidad Nacional de Colombia, Bogotá.
- [11] Cai, L., Hyde, K., Taylor, P., Weir, B., Waller, J., Abang, M., Zhang, J., Yang, Y., Phoulivong, S., Liu, Z., Prihastuti, H., Shivas, R., McKenzie, E. and Johnston, P. ( 2009) A polyphasic approach for studying *Colletotrichum*. *Fungal Diversity*, 39, 183-204.
- [12] Riascos, D., Quiroga, I. and Hoyos, L. (2010) Histopatología de la rona en gulupa (*Passiflora edulis* Sims.) Memorias de I congreso Latinoamericano de Passiflora, Neiva-Colombia.
- [13] Fischer, I. and Rezende, J. (2008) Diseases of passion flower (*Passiflora* spp.). Global Science Book, Hong Kong.
- [14] Becerra, N. and Chaparro, M. (1999) Morfología y Anatomía Vegetal. Universidad Nacional de Colombia, sede Bogotá.
- [15] Walters, D., McRoberts, N. and Fitt, D. (2007) Are green islands red herrings? Significance of green islands in plant interactions with pathogens and pests. *Biological Reviews*, 83, 79-102. doi:10.1111/j.1469-185X.2007.00033.x
- [16] Agrios, G. (2005) Plant pathology. 5th Edition, Elsevier Academic Press, New York.
- [17] Barbosa, M., Rehn, K., Menezes, M. and Mariano, R. (2001) Antagonism of *Trichoderma* species on *Cladosporium herbarum* and their enzymatic characterization. *Brazilian Journal of Microbiology*, 32, 98-104. doi:10.1590/S1517-83822001000200005
- [18] Oliver, R., Henricot, B. and Segers, G. (2000) *Cladosporium fulvum*, cause of leaf mould of tomato. In: Kronstad, J. Ed., *Fungal Pathology*, Kluwer Academic, Dordrecht, 65-91.
- [19] Van Kan, J., Van den Ackerveken, G. and De Wit, P. (1991) Cloning and characterization of cDNA of avirulence gene *avr9* of the fungal pathogen *Cladosporium fulvum*, causal agent of tomato leaf mold. *Molecular Plant-Microbe Interactions*, 4, 52-59. doi:10.1094/MPMI-4-052
- [20] Van den Ackerveken, G., van Kan, J., Joosten, M., Muisers, J., Verbakel, H. and de Wit, P. (1993) Characterization of two putative pathogenicity genes of the fungal tomato pathogen *Cladosporium fulvum*. *Molecular Plant-Microbe Interactions*, 6, 210-215. doi:10.1094/MPMI-6-210
- [21] Joosten, M., Cozijnsen, T. and De Wit, P. (1994) Host resistance to a fungal tomato pathogen lost by a single base-pair change in an avirulence gene. *Nature*, 367, 384-386. doi:10.1038/367384a0
- [22] Laugé, R., Goodwin, P., de Wit, P. and Joosten, M. (2000) Specific HR-associated recognition of secreted proteins from *Cladosporium fulvum* occurs in both host and non-host plants. *Plant Journal*, 23, 735-745. doi:10.1046/j.1365-313x.2000.00843.x