

( )

## Uncinula necator

//

*Uncinula necator* (Schw.)

**Burr.**

( % )

/

*Podosphaera* ( ) *pannosa* (Wallr.) Lev.

( ) *leucotricha* (Ell. & Ev.) Salm.

( % )

*U. necator*

( )

*Uncinula* (Schw.)Burr.

*E.* ( ) *Erysiphe graminis* DC.( ) *necator*

( ) *polygoni* DC.

*Sphaerotheca* ( ) *E. cichoracearum* DC. ex Merat

( )

*U. necator*

)

( )

( )

( )

( )

( )

"

( )

( ) ( ) ( )

( )

*U. necator*

$\text{Na}_2\text{SO}_4$   $\text{NaCl}$   $\text{Na}_2\text{Cr}_2\text{O}_7$   
(VPD)

( )

*U. necator*

( )

( )

)

(

(

( )

*U. necator*

Settling tower

Na<sub>2</sub>SO<sub>4</sub> NaCl Na<sub>2</sub>Cr<sub>2</sub>O<sub>7</sub>

SAS

Excell

) VPD

( )

( P < / )

( )

/ )

( )

( )

%

)

(

/

(

( )

%

)

/

)

(

(

)

(

( )

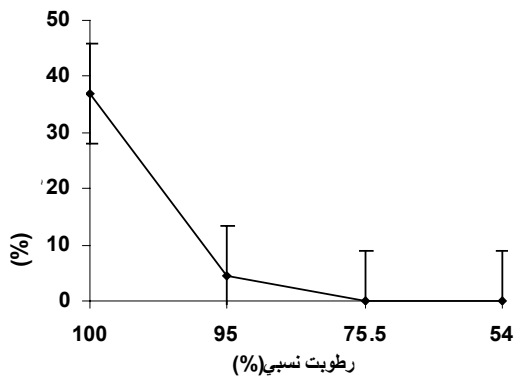
:

/

(%

/

/

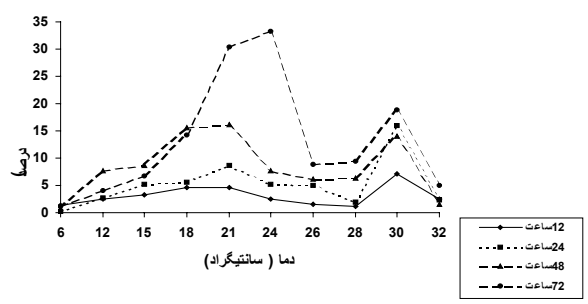


*U. necator*  
(Bar)

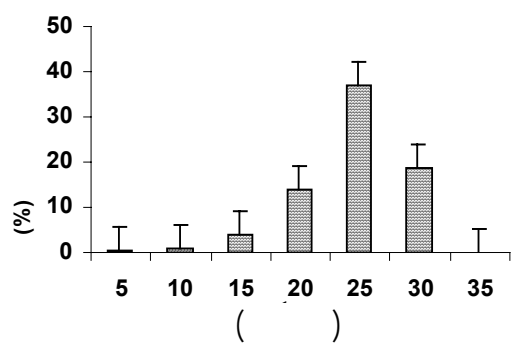
VPD  
(Vapor pressure deficit)  
VPD

( )  
( P < / )

<i>U. necator</i>		
F		
/ **	/	/
	/	/
P < /		**



*U. necator*



*U. necator*  
(Bar)



*U. necator* VPD %  
 ( )  
 %  
 ( ) VPD  
 / / *U. necator* ( )  
*U. necator* /  
 ( )  
 ( )  
*U. necator*  
 ( ) ( )  
*E. graminis* f. sp  
*S. humuli* ( ) *hordei*  
 ( )  
*Leveillula* (Sorok) Golovin ( ) *P. clandestine*  
 ( ) *saxaouli*  
 ( )  
*U. necator*  
 ( )  
 ( )  
 % *U. necator*

...

:

*S. pannosa*

*S. pannosa*

.( )

*U. necator*

*U. necator*

( )

*U. necator*

.( )

%

%

%

"

( )

%

( )

RAPD-PCR

.( )

.( )

Erysiphaceae

" .( )

*Phyllactinia*

( )

*Leveillula*

( )

*S. pannosa*

( )

*Quercus robur* L.

*U. necator*

*Microsphaera* Riff. & Maubl

( )

*alphitoides*

( )

*S. pannosa*

( )

%

( )

*L. saxaouli*

%

%

%

( )

*U.necator*

%

*S. pannosa*

( )

( )

*S. pannosa* var. *persicae*

%

( )

%

## REFERENCES

RAPD-PCR

*Leveillula saxaouli*

*Uncinula necator*



3. Aurel, T. N. 1974. Cercetari privind biologia ciupercic *Uncinula necator* (Schw.) Burr. Care prova ca Fainarea Vitei de vie si mijloacele de combatere in conditiil epodogoriei Dealul Mare. Ph. D. thesis. Institutul Agronomic. Bucuresti. Romania. 212 pp.
4. Berwith, C. E. 1936. Apple powdery mildew. *Phytopathology* 26:1071-1073.
5. Brodie, H. J., & C. C. Neufeld. 1942. The development and structure of the conidia of *Erysiphe polygoni* and their germination at low humidity. *Can. J. Res.* 20: 41-61.
6. Chellemi, D. O., & J. J. Marois. 1991. Effect of fungicides and water on sporulation of *ncinula necator*. *Plant Dis.* 75:455-457.
7. Cortesi, P., Bisiach, M., Ricciolini, & D. M. Gadoury. 1997. Cleistothecia of *Uncinula necator*-An additional source of inoculum in Italian vineyards. *Plant. Dis.* 81: 922 -926.
8. Cutter, E. C., & B. E. J. Wheeler. 1968. Effect of temprature on ascospore discharge from cleistocarps of *Erysiphe cichoracearum* on *Arctium lappa*. *Trans. Br. Mycol. Soc.* 51(5): 791-812.
9. Delp, C. J. 1954. Effect of temprature and humidity on the grape powdery mildew fungus. *Pythopathology* 44: 615-626.
10. Edwards, M. C., & P. G. Ayers. 1982. Effect of materials from oak leaf surfaces on germination of *Microsphaera alphitoides* conidia. *Trans. Br. Mycol. Soc.* 78:123-128.
11. Gadoury, D. M., & R. C. Pearson. 1990. Germination of ascospores and infection of vitis by *Uncinula necator*. *Phytopathology* 80: 1198-1203.
12. Galloway, B. T. 1895. Observation on the development of *Uncinula spiralis*, *Bot, Gaz.* 20:486-493.
13. Gee, L. M., Stummer, B. E., Gadoury, D. M., Biggins, L. T. & E. S. Scott, 2000. Maturation of cleistothecia of *Uncinula necator* ( powdery mildew ) and release of ascospores in southern Australia. *Australian Journal of Grape and Wine Research* 6:13-20.
14. Grove, G. 1991. Powdery mildew of Sweet Cherry: Influence of temperature and wetness duration on release and germination of ascospores of *Podosphaera clandestina*. *Phytopathology* 81:1271-1275.
15. Jailloux, F. L., Willocquet, L., Chapuis, & G. Froidefond. 1999. Effect of weather factors on the release of ascospores of *Uncinula necator*, the cause of grape powdery mildew, in the Bordeaux region. *Can. J. Bot.* 77: 1044 -1051.
16. Khairi, S. M., & T. F. Preese. 1979. Hawthorn powdery mildew: effects of leaf age, pre- inoculation washing, temprature and relative humidity on germination of conidia on leaf surfaces. *Trans. Br. Mycol. Soc.* 72:75-80.
17. Lianage, A. S., & D. G. Royle. 1976. Overwintering of *Sphaerotheca hummuli*, the cause of Hop powdery mildew. *Ann. Appl. Biol.* 83:381-394.
18. Longree. K. 1939. The effect of temprature and relative humidity on the powdery mildew of Roses. *Cornell. Univ. Agr. Expt. Sta. Mem.* 223.43 p.
19. Moritz, C., Zinkernagel, V., & H. H. Kassemeyer. 1994. Investigation on release and germination of ascospores *Uncinula necator* in South-West Germany. In : *Proceeding of the 2th international workshop on Grapevine Downey and Powdery Mildew Modelling* , Freiburg, Germany, 29 August – 1 September, Freiburg, Germany.
20. Moseman, J. G., & H. R. Powers. 1957. Function and longevity of cleistothecia of *Erysiphe graminis* f. sp. *hordei*. *Phytopathology*, 47:53-56.
21. Nour, M. A. 1959. Studies on *Leveillula taurica* and other powdery mildews. *Trans. Br. Mycol. Soc.* 41: 17-38.
22. Pearson, R. C., & D. M. Gadoury. 1987. Cleistothecia, the source of primary inoculum for grape powdery mildew in New York. *Phytopathology* 77: 1509-1514.
23. Perea, R. G. & B. E. J. Wheeler. 1973. Effects of water on the development of *Sphaerotheca pannosa* on the rose leaves. *Trans. Br. Mycol. Soc.* 46:313-319.
24. Sivapalan, A. 1993. Effects of water on germination of powdery mildew conidia. *Mycol. Res.* 97:71-76.

25. Turner, D. M. 1956. Studies on cereal mildew in Britain. *Trans. Br. Mycol. Soc.* 39:495-506.
26. Weinhold, A. R. 1961. Temperature and moisture requirements for germination of conidia *Sphaerotheca pannosa* from Peach. *Phytopathology* 51: 699-703.
27. Yarwood, C. E. 1936. The tolerance of *Erysiphe polygoni* and certain other powdery mildew to low humidity. *Phytopathology* 26:845-859.
28. Yarwood, C. E. 1950. Water content of fungus spores. *Amer. J. Bot.* 37: 636-639.
29. Yarwood, C. E. 1952. Some water relations of *Erysiphe polygoni* conidia. *Mycologia* 44: 506-522.
30. Yarwood, C. E. 1957. Powdery mildews. *Bot. Rev.* 23:235-301.
31. Yarwood, C. E. 1978. Water stimulates *Sphaerotheca*. *Mycologia* 70:1035-1039.
32. Yossifovitch, M 1923. Contribution al etude de l oidium de la vigne et son traitement. Ph.D. thesis. Universite de Toulouse. Toulouse. France.
33. Zaracovitis, C. 1966. Shrivelling, Collapse of conidia of powdery mildews. *Annales de l Institut Phytopathologique Benaki, N. S.* 7: 219-226.