# GRAPEVINE VARIETIES BEHAVIOR ON MAINE PATHOGENS ATTACK IN 2008 FROM THE AMPELOGRAPHICAL COLLECTION OF U.S.A.M.V. IASI

# COMPORTAMENTUL UNOR SOIURI DE VIȚĂ DE VIE DIN COLECȚIA AMPELOGRAFICĂ A USAMV IAŞI LA ATACUL PRINCIPALILOR AGENȚI PATOGENI ÎN ANUL 2008

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***Abstract:*** *One of the reasons for lower grapes production is the pathogens attack in the vineyards. The grapevine mildew together with the powdery mildew and the grape grey mould are considered the most damaging diseases of the grapevine. The mildew and powdery mildew attack all aerial parts of the grapevine plants, while grape gray mould is frequently encountered on the mature berries, close to harvest. The study of these three pathogens was due to the fact that, they are present every year in the vineyards and producing attacks materialized in significant economic losses. The data regarding pathogens attack to the vines was conducted through surveys. The biological material was represented by different varieties of grapes, table grapes and wine grapes. The field observation was correlated with yearly phonological and ecological elements which lead to prognoses and control of main pathogenic agents. Depending on degree of attack recorded for each variety was established the expression of varietals and resistance of analyzed sorts (by OIV 459). The grape varieties which were taken in study showed different reactions under the same environmental conditions, materialized by different attack degrees to grapevine mildew, powdery mildew and grape grey mould. This paper contains results regarding the epidemiology and evolution of the main pathogens that attack the analyzed grapevine varieties.*

***Rezumat:*** *Atacul agenților fitopatogeni din cultura viței de vie reprezintă una dintre cauzele datorită cărora producția de struguri nu se valorifică la întregul potențial. Mana viței de vie, alături de făinare şi putregaiul cenuşiu al strugurilor, sunt considerate ca fiind cele mai păgubitoare boli ale viței de vie. Atacul de mană şi făinare se manifestă pe toate organele aeriene ale viței de vie, în timp ce putregaiul cenuşiu este întâlnit frecvent pe bacele mature, aproape de recoltare. Analiza atacului acestor agenți fitopatogeni s-a datorat faptului că respectivii agenți de dăunare sunt prezenți an de an în plantațiile viticole şi produc atacuri materializate în pagube semnificative din punct de vedere economic. Culegerea datelor privind atacul agenților patogeni la vița de vie s-a facut prin sondaje. Materialul biologic luat în studiu a fost reprezentat de diferite soiuri de viță de vie, soiuri de struguri pentru masă şi soiuri de struguri pentru vin. În funcție de gradul de atac înregistrat pentru fiecare soi de viță de vie, a fost stabilită expresia caracterului şi rezistența soiurilor analizate (după OIV 459). Soiurile luate în studiu au manifestat reacții diferite în aceleaşi condiții de mediu, concretizate prin grade de atac la putregaiul cenuşiu, mană şi făinare care variază între limite destul de mari. În prezenta lucrare sunt cuprinse rezultate privind răspândirea şi evoluția principalilor agenților patogeni ce atacă unele soiuri de viță de vie.*

***Key words*****:** *grapevine disease, frequency, intensity, attack level*
***Cuvinte cheie*****:** *boli vița de vie, frecvență, intensitate, grad de atac*

## INTRODUCTION

In the grapevine growing plantations, the specter of the pathogen agents is so big, that almost all the plants from vineyard are attacked. Among the pathogen agents that provoke big damage to the vineyard are known: *Plasmopara viticola* (mildew), *Uncinula necator* (powdery mildew) and *Botryotinia fuckeliana* (grape grey mould).

## MATERIAL AND METHODS

Observations were performed in the ampelographic collection of USAMV Iasi, aiming the frequency (F %), intensity (I %) and attack level (GA %) to the existing grapes varieties. Observations and determinations were in scoring the attack on grapes and leaves for mildew, powdery mildew and grey mould. *Plasmopara viticola* and *Uncinula necator* were pursued on both, leaves and grapes. Based on data from the literature was chosen a methodology to reflect the attack more accurately. *Botryotinia fuckeliana* was followed during ripening of grapes, taking into account all the grapes from vine. In assessing the resistance of grapevine varieties was used the scale proposed by the OIV (1993).

## RESULTS AND DISCUSSIONS

Climatic conditions recorded during observations were in normal limits, showing values of temperature and rainfall close to normal. Observations made in 2008, have showed that incidence of each pathogen was influenced by climatic conditions and their biological reserve. Following the occurrence and evolution of pathogens, it is noted that in 2008 were present: mildew – *Plasmopara viticola* – (Berk. et M. A. Curtis) Berl. et De Toni., powdery mildew – *Uncinula necator* – (Schwein.) Burrill and grape grey mould – *Botryotinia fuckeliana* – De Bary (Whetzel). It was reported sporadic attacks by anthracnose - Elsinoë ampelina Shear. Data obtained from observations made in the ampelographic collection of USAMV Iasi are showed in figure. 1-8.

In figures 1 and 2 the attack of mildew on leaves, in table grapes varieties has values from 60% to Cetățuia variety, followed by Chasselas doré, Pearla de Csaba and Princes. Regarding wine varieties, the maximum percentage of 59.6% was on Muscat Ottonel, other varieties have not exceeded the value of 40%.

Regarding the attack on bunch (figures 3 and 4) only some varieties have proved susceptible, with a maximum degree of attack 46.5% to Ceaus variety, followed by Princes and Pance D'Espagne from table grapes varieties and from wine varieties: Busuioaca de Bohotin, Riesling Italian, Feteasca neagra and Blauerzweigelt having a weak resistance to pathogen attack.

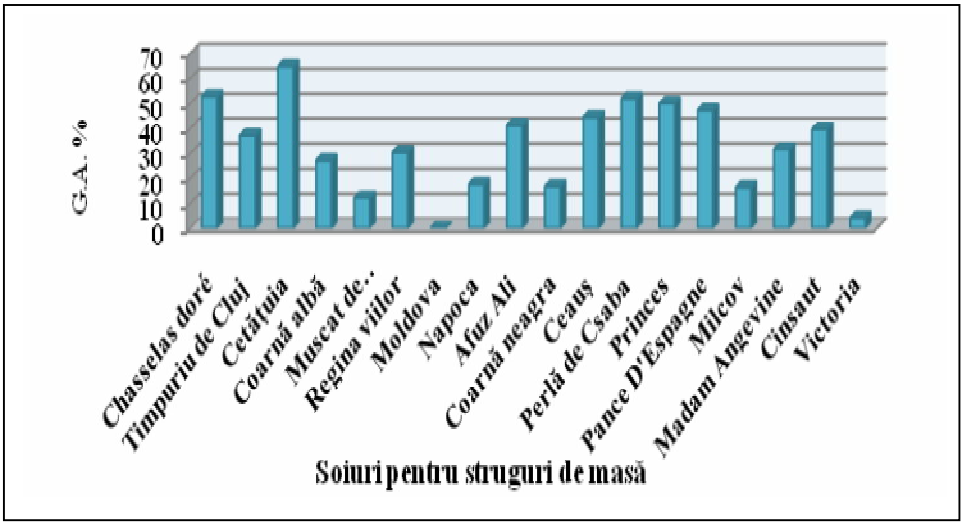


Figure 1. The degree attack of *Plasmopara viticola* on leaves

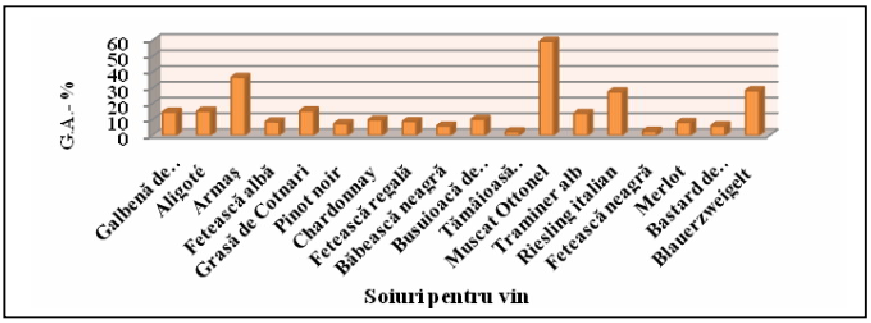


Figure 2. The degree attack of *Plasmopara viticola* on leaves

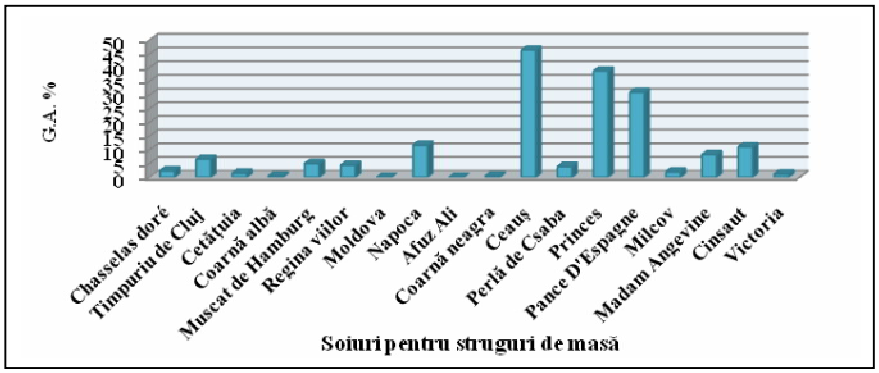


Figure 3. The degree attack of *Plasmopara viticola* on bunch

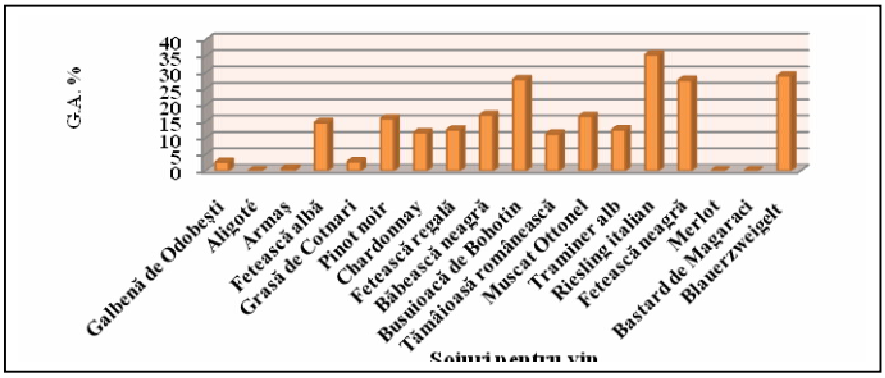


Figure 4. The degree attack of *Plasmopara viticola* on bunch

From data presented in Fig. 5 and 6, higher values of degree attack from pathogen *Botryotinia fuckeliana* were recorded to wine varieties, the attack on the bunch reaching 70% to variety Galbena de Odobesti, followed by Grasa de Cotnari and Busuioaca de Bohotin. Among varieties for table grapes, a medium resistance present varieties Perlă de Csaba, Ceaus,

Cinsaut with degrees of attack ranging between 25.4% to Cinsaut variety and 34.6% to Perla de Csaba variety.

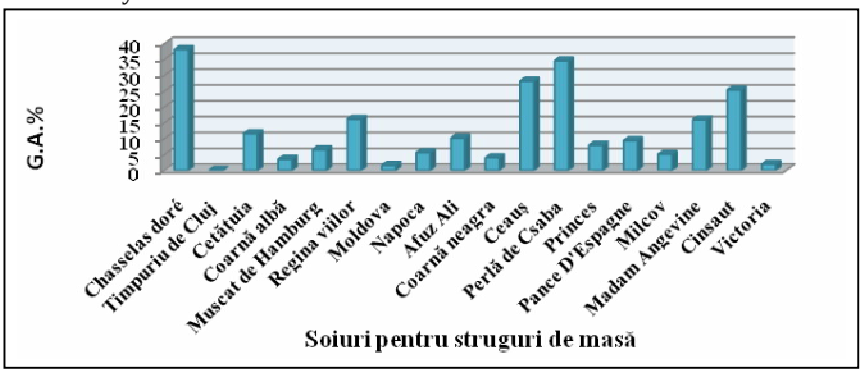


Figure 5. The degree attack of *Botryotinia fuckeliana* on bunch

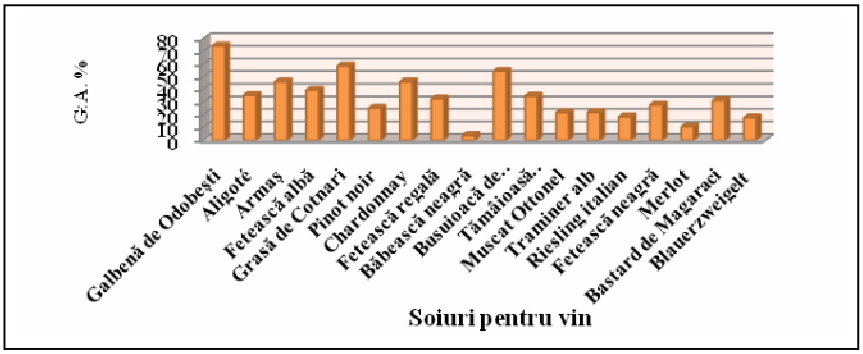


Figure 6. The degree attack of *Botryotinia fuckeliana* on bunch

*Uncinula necator* attack on leaves was observed with a very low intensity. The bunch attack on table grapes varieties as: Afuz Ali, Cetatuia, Coarna alba, Coarna alba, Milcov recorded values exceeding 90% register itself as being very sensitive. High degree values of attack were recorded for wine varieties: Babeasca neagra, Grasa de Cotnari, Galbena de Odobesti and Blauerzweigelt etc. (figures 7 and 8).

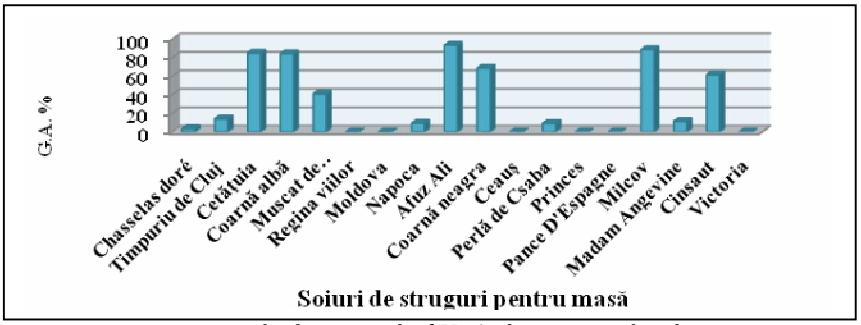


Figure 7. The degree attack of *Uncinula necator* on bunch

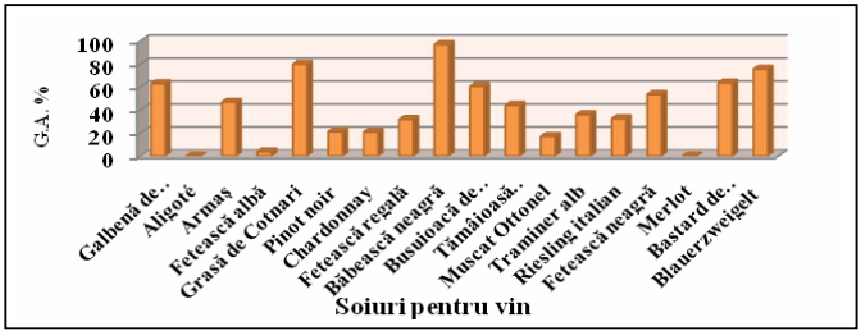


Figure 8. The degree attack of *Uncinula necator* on bunch

## CONCLUSIONS

1. Low resistance to mildew attack on leaves, with traits expression 2 according to the OIV code 455 recorded table grapes varieties: Chasselas doré, Cetatuia, Perla de Csaba and wine variety Muscat Ottonel.

2. Good and middle resistance showed most of table grape varieties, with the traits expression 5, 6, 7 and very good resistance varieties: Victoria and Moldova with the traits expression 8 and 9.

3. The attack on bunches for both groups of varieties presents a low resistance, with degrees of attack ranging from 25-50% with traits expression 3 and 4, according to OIV code 456.

4. Very low resistance to grape grey mould submit wine varieties: Galbena de Odobesti, Grasa de Cotnari and Busuioaca de Bohotin with traits expression 2, according OIV code 459. Low resistance showed the table grapes varieties: Chasselas doré, Ceaus, Perla de Csaba and Cinsaut with traits expression 4.

5. Powdery mildew attack on bunches showed a very low resistance for both type of varieties, having degrees of attack exceeding 90% and traits expression 1, according to the OIV code 456.

## BIBLIOGRAFY

1. BULLETIN DE L'OIV, 1983 – Descriptor list for grapevine varieties, OIV Paris, 135 pag.
2. PAVLOUŠEK P., 2007 – Evaluation of resistance to powdery mildew in grapevine genetic resources, Journal Central European Agriculture, vol. 8, no. 1 (105-114).
3. UPOV, 1996 – Working Paper on Revised Test Guidelines for Vine (Vitis L.), Geneva, 45 pag.
4. ŢÂRDEA C., ROTARU LILIANA, 2003 – Ampelografie vol. II., Editura "Ion Ionescu de la Brad", Iaşi.