

PETRIA

Giornale di Patologia delle Piante



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Rassegna/Review

MONTALBINI P. e M. MARTE: Il trasporto dei virus nell'interno della pianta. Stato attuale delle conoscenze. [*Virus transport within the plant. An insight into the present knowledge of the problem.*]

Atti/Proceedings

1° Seminario della "Nursery" europea delle malattie dell'avena. [*1st European Oat Disease Nursery Workshop*]



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1625332, then follow 1622260, 1608948 and 1887806. The number of virulence genes in one genotype varied from 4 to 15; most of them had 7 and 10 virulence genes. The most frequent were genes *V54*, *V60*, *V61*, *V64*, *V67*, *V(P)* and *V(CS)*.

The population of *Puccinia graminis* var. *avenae* consisted of significantly less genotypes. Six different combinations of the virulence, avirulence genes were identified. The most frequent were genotypes with formulas (*V/A*) 3, 3+?, 9, 15, 16/1, 1+?, 2, 4, 8, 13, *a*, *ABDH* (51.28%) and 3, 3+?, 9, 15/1, 1+?, 2, 4, 8, 13, 16, *a*, *ABDH* (30.78%). The genetic basis of virulence of these two genotypes is similar, except for gene *V16*. In the stem rust population the most frequent were genes *V3*, *V3+?*, *V9* and *V15*, and the less frequent ones *Va* and *V(ABDH)*. The results point out a narrow virulence spectrum of this rust in Serbia and the need to use other oat genotypes in differentiation of its populations.

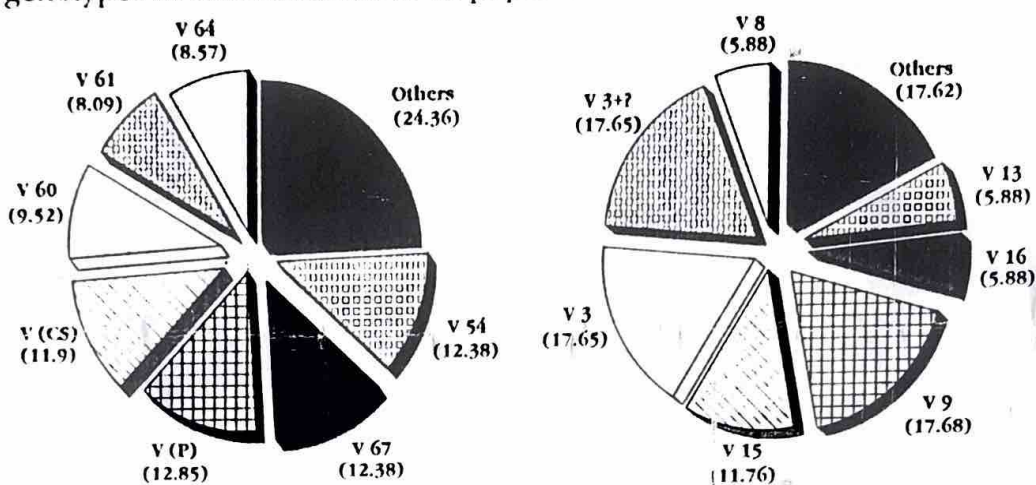


Fig. 1 - Frequencies (%) of the virulence genes in the population of crown rust (left) and stem rust (right).

Search of incomplete resistance of oat to crown rust

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Basic goal in oat breeding for resistance to crown rust is to provide a long-term protection. Several investigations have shown that oat cultivars which possess incomplete resistance factors retain their resistance for a long

time. Incomplete resistance appeared useful, particularly when cultivars are grown on large areas. The aim of these investigations was to establish the presence of factors for incomplete resistance in some lines and cultivars of oat from EODN, as well as in some domestic selections.

In the investigation were included 23 lines and cultivars from EODN (*Pc 38, Pc39, Pc48, Pc50, Pc50-2, Pc50-4, Pc54, Pc 55, Pc 56, Pc 58, Pc 59, Pc 60, Pc 61, Pc 62, Pc 63, Pc 64, Pc 67, Pc 68, Pen² × Cav 1376, KR 3813/73, KR 288/73L/569, Pirol, Garland*), and 5 domestic oat cultivars (*Lovcen, Labud, Rajac, Mediteran and Slavuj*). The resistance to *Puccinia coronata* var. *avenae* at seedling stage was evaluated. Inoculation with pure culture of one isolate from Kragujevac, was performed in a settling tower. Germination of spores and number per mm² were established on PDA after 24 hours. In the middle part of the blade of every leaf, an area of 20 × 5 mm was marked. After the infection, the plants were grown in the greenhouse, and the number of pustules on the marked leaf area was evaluated. Length of latent period (LP 50) and infection efficiency (IE) were established; infection type (IT) was established according to Stakman *et al.* (1963).

Most of the examined lines and cultivars from EODN exhibited complete resistance to *P. coronata* var. *avenae*. IT 0 was noted on lines *Pc48, Pc50, Pc 50-2, Pc 50-4, Pc 58, Pc 59, Pc 60, Pc 61, Pc 68, Pen² × Cav 1367, KR 3813/73* and cultivar *Pirol*, and IT 0; on *Pc 39, Pc 54, Pc 55, Pc 62* and *Pc 63*. Several lines developed infection type 1 (*Pc 38* and *Pc 64*) and 4 (*Pc 56* and *Pc 67*). Values of LP 50 and IE were similar for lines *Pc 38* and *Pc 64*, while IE for lines *Pc 56* and *Pc 67* was different. In the cultivar *Rajac* in comparison with cultivar *Slavuj* some longer LP 50 and significantly lower IE was established. The results obtained pointed out genetic differences for incomplete resistance to crown rust among oat genotypes *Rajac, Slavuj, Pc 38, Pc 56, Pc 64* and *Pc 67*. Their genetic basis for slow-rusting resistance needs to be further investigated.