

***Anchusa* - Mosaic Caused by TMV-Infection in Nature**

ZDENKO POLÁK

Department of Plant Pathology, Institute of Experimental Botany, Czechoslovak Academy of Sciences, Praha*

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Abstract. Mosaic disease of *Anchusa officinalis* found at a ruderal association in Prague-Holešovice in the close proximity of TMV-infected cruciferous weeds *Cardaria draba* and *Sisymbrium loeselii*, was identified to be caused by the same agent — the necrotic TMV-strain.

During an attempt to find further weed reservoirs of a necrotic TMV-strain isolated from two cruciferous weeds — *Cardaria draba* Desv. and *Sisymbrium loeselii* Jusl. — at a ruderal locality in Prague-Holešovice (POLÁK, 1965) the virus was recovered also from *Anchusa officinalis* L., found at the same locality. The disease was manifested by slight yellowish-green mottling in leaves.

Anchusa sp., a common boraginaceous weed, was found naturally infected with cucumber mosaic virus by SMITH (1952). SMITH described and figured the disease as characteristic yellow spoty mosaic. According to data found in the literature (KÖHLER, KLINKOWSKI, 1954, and KLINKOWSKI, 1958), *Anchusa* was demonstrated to be susceptible to cabbage black ringspot and aster yellows viruses too. Experimental studies by HOLMES (1946) showed the increase of TMV infection locally but neither a systemic spread of the virus nor a production of an obvious disease in seven boraginaceous species including *Anchusa azulea* MILL. and *A. capensis* THUNB.

All studies were carried out in a greenhouse. The virus was maintained on Samsun tobacco plants. The leaves of seedling plants of nine differential hosts used in experiments were lightly dusted with carborundum, gently rubbed with infectious juice expressed from infected plants diluted about 1 : 1 with water.

Minimally twenty individuals of each species were tested.

Preparations made from leaves of artificially infected Samsun tobaccos were investigated under the electron microscope and compared with a check TMV-preparation. Micrographs were taken on a model Tesla BS 242 electron microscope and showed rod-like particles of the same size range as for the check green strain; the average length was about 300 nm.

* Address: Na Karlovce 1, Praha 6 — Dejvice

Table 1. Results of identification trials with the crude leaf-extract

Differential host plant	Symptoms	
	local	systemic
<i>Nicotiana tabacum</i> cv. Samsun	—	slight green mosaic followed by the formation of numerous minute necrotic spots in lighter areas or necrotic patterns lately more evident in older leaves
<i>N. tabacum</i> cv. White Burley	primary chlorotic lesions	clearing of veins, formation of necrotic spots and areas
<i>N. tabacum</i> cv. Xanthi-ne	necrotic lesions	—
<i>N. tabacum</i> cv. Java	necrotic lesions	—
<i>N. glutinosa</i>	necrotic lesions	—
<i>N. sylvestris</i>	small-necrotic spots	light-green vein banding with necroses, green mosaic spots
<i>Chenopodium giganteum</i>	circular chlorotic lesions about 1·0 mm. in diameter	—
<i>Datura innoxia</i>	necrotic lesions	—
<i>Solanum lycopersicum</i>		slight green mosaic and leaf curl

It follows from the above experiments that the agent causing the described mosaic disease is identical with the necrotic TMV-strain isolated from the two cruciferous weeds a short time before at the same locality.

References

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Mozaiku pilátu lékařského jsme zjistili na ruderalní lokalitě v Praze-Holešovicích v těsné blízkosti rostlin vesnovky a hulevníku infikovaných nekrotickým kmenem VMT. Identifikačními pokusy a elektronoptickým znázorněním bylo dokázáno, že mozaika pilátu je vyvolána týžž agens — nekrotickým kmenem VMT.

З. Полак, Отделение фитопатологии, Институт экспериментальной ботаники ЧСАН, Прага: Мозаичная болезнь *Anchusa officinalis* L. которая вызывается в природе инфекцией ВМТ. — Biol. Plant. 8 : 431—433, 1966.

В рудеральной ассоциации в Праге-Голешовице мы наблюдали в тесной близости растений *Cardaria draba* и *Sisymbrium loeselii* зараженных некротическим штаммом вируса мозаики табака несколько растений *A. officinalis* с симптомами выражающимися на молодых листьях в легкой светло-зеленой пятнистой мозаике. Средние и старшие листья были хлоротичные. Было установлено, что причиной заболевания является некротический штамм вируса мозаики табака.