

Studies on *Quercus robur* - a perspective

Martina Bandte¹, Sabine Fabich², Susanne von Bargaen¹, Carmen Büttner¹

¹ Humboldt-Universität zu Berlin, Landwirtschaftlich-Gärtnerische Fakultät, Fachgebiet Phytomedizin, Lentzeallee 55/57, D-14195 Berlin

² DLR Rheinessen-Nahe-Hunsrück, Rüdesheimer Str. 60–68, 55545 Bad Kreuznach

Contact: phytomedizin@agrar.hu-berlin.de

Virus-like symptoms such as distinct chlorotic lesions, ringspots and chlorotic mottle are often observed on leaves of oak trees and seedlings (*Quercus robur* L) growing at several forest stands and nurseries in the northern part of Germany.

The same symptoms were induced on young oak seedlings after grafting. So far, the causal agent was not transmissible by mechanical inoculation of plant sap to indicator plants. Investigations by serological means demonstrated that the agent of virus-like symptoms of oak is not related to viruses widely spread in the forest ecosystem such as *Tobacco mosaic virus*, *Tobacco necrosis virus*, *Brome mosaic virus*, *Cherry leaf roll virus* and *European mountain ash ringspot-associated virus*.

Different completely base paired double-stranded RNA (dsRNA) fragments indicated at 1.5 to 2.0 kbp were isolated from oak. Three types of dsRNA banding patterns occurred in the investigated oak leaf tissue independent of a symptom development due to a virus infection. The fragments were partially characterized physically and molecular. The number of the conformational transition and the denaturation profile of the two dsRNA structures each in type 1 and 2 are analogous with those of the four dsRNA structures of type 3. The denaturation profile of the individual dsRNA structures is very characteristic and allows the classification to one of the types by visual evaluation. Sequence analysis strongly indicates towards the presence of RdRp coding dsRNAs which are associated with the Partitivirus family, comprising two plant pathogenic cryptovirus genera not causing symptoms in their hosts. The characteristics of isolated dsRNA exclude them from being intermediate products of the causal agent of the disease.