

In Memoriam

Prof. Dr. Ana Šarić, who was a long-term Professor in the Faculty of Agriculture of Zagreb, died in Zagreb on 16 June 2001. She was born on 8 June 1916 in Opuzen, finished high-school in Split in 1934, and graduated in 1939 from the Faculty of Agriculture and Forestry of the University of Belgrade. After graduation, she worked for a while at the Agricultural Station of Split, then, from 1945-1949, at the Institute of Agriculture of Zagreb. In 1946-7 she enrolled in the Biological Department of the Faculty of Science of Zagreb and graduated in 1950. She earned her doctor degree in 1955 with a thesis on Myxobacteria in Yugoslav soils. She habilitated in 1959 with the paper: "A contribution to timber blue staining fungi" and delivered the habilitation lecture on "Antitoxic and antiinfection plant reactions". Ana Šarić completed her specialisation in Plant virology in 1957 at the Laboratorio Crittogamico Italiano of Pavia, Italy, under the supervision of Prof. R. Ciferri. At the Faculty of Agriculture of Zagreb, she was appointed assistant in the Department of Botany in 1949. In 1954 she moved to the Department for Plant Pathology where she worked until retirement. She was appointed Lecturer in 1962, Reader in 1968, and Professor in 1973. Ana Šarić lectured for graduate and post-graduate students at the Faculty of Agriculture of Zagreb, for post-graduate students at the Faculty of Biotechnology of Ljubljana, and in the Dipartimento di Biologia Applicata alla Difesa delle Piante of the University of Udine, Italy. She was a member of many scientific associations, among which the American Phytopathological Society, the Mediterranean Phytopathological Union, the Croatian Plant Protection Organisation, and was one of the outstanding members of the International Council for the Study of Virus and Virus Diseases of the Grapevine. By participating regularly in many congresses, advisory meetings and symposia, at home and abroad, she came in touch during her life with many plant virologists. As she spoke fluently several foreign languages (French, English, Italian, German, Russian), contacts with experts from all areas of virology were easily established and maintained. One could say that there was hardly a significant virological institution in Europe with which Ana Šarić did not collaborate. Notwithstanding the meager financial resources, with much self-sacrifice and enthusiasm, she established a fine plant virus laboratory in the Faculty of Agriculture of Zagreb, mastering and applying new techniques and directing research of high quality. After retirement she continued to work for years in plant virology projects at the Virus Laboratory of the Faculty of Science. Ana Šarić published over 75 research papers, mostly in acknowledged international journals, the last one of which appeared in the year 2000. She has been active first in Botany, then in several fields of Plant pathology; she was the first in Croatia to identify *Peyronella glomerata*, *Stereum purpureum*, and to study wood-destroying fungi in mines. Later, she carried out research on *Bacillus thuringiensis*, bacteriophages and Myxobacteria, the subject in which she earned her doctor degree. Together with Prof. Dr. M. Panjan and the Academician D. Miličić, the founders of Plant virology in Croatia, Ana Šarić studied phytoplasmas of tomato, pear, and apple, and viruses of cherry, plum, peach, lettuce, soya, carnation, and several other crops, isolating and reporting many new viruses. Yet, her greatest love were grapevine viruses and phytoplasma, to whose knowledge she gave her most significant contributions. Her studies have set an example that will leave a long-lasting trace in Croatian Plant virology. Ana Šarić did not forget the practical aspects of virology, especially with reference to the production of sanitarly improved propagative material of fruit trees, citrus and grapevine. The first apple and grapevine nursery plants that were certified in Croatia as virus-tested material were produced under her supervision.

The depth of her humanistic education and erudition were an impressive part of her personality which will long be remembered by all of those who collaborated with her. Now that our emotions and thoughts have calmed, we can look back to her with even greater respect and admiration, and feel proud that she was and still is with us. As an expert plant pathologist and teacher, she gave a

significant contribution to the instruction of many generations of agronomists, and her scientific work enhanced the reputation of Croatian science and the development of its economy. We are most grateful to Prof. Dr. Ana Šarić for all she gave us as a scientist, teacher, and human being, and will gratefully remember her forever.

Prof. Dr. B. Cvjetković-Monti

Head of the Department of Plant Pathology, Faculty of Agricultural Sciences, University of Zagreb

Petria 11(3), 129-147, (2001) Rassegna/Review

Pomodoro geneticamente modificato per la resistenza a virus: dalla trasformazione *in vitro* alla trasformazione in “salsa”

LAURA TOMASSOLI, MARINA BARBA

Istituto Sperimentale per la Patologia Vegetale, Via C.G. Bertero, 22, I-00156 Roma

L'Istituto Sperimentale per la Patologia Vegetale, partendo da un problema fitosanitario del pomodoro, ha acquisito, nel corso di un decennio, competenze scientifiche sempre più ampie nel campo delle biotecnologie delle piante geneticamente modificate (PGM). Il primo obiettivo di ricerca, infatti, ha previsto la produzione di varietà di pomodoro transgenico dotate di resistenza al virus del mosaico del cetriolo (CMV) in quanto principale avversità virologica per la coltivazione della solanacea in Italia. La strategia di transgenosi utilizzata ha fornito, fin dalle prime prove di trasformazione e valutazione delle linee ottenute, risultati incoraggianti, ottenendo linee varietali altamente resistenti al virus in condizioni naturali di campo. Questi risultati hanno, quindi, fornito lo stimolo scientifico ad avviare ricerche verso altre direzioni legate alla “sicurezza d'uso” delle piante transgeniche. Alla luce di questi nuovi impulsi e in sintonia con il vivace dibattito nazionale ed europeo in materia di OGM, sono stati effettuati studi sulla messa a punto di protocolli di identificazione dei geni esogeni in pomodoro transgenico in ogni sua parte vegetativa e nel suo prodotto alimentare fresco e industrialmente trasformato. Il rischio di dispersione dei transgeni attraverso il polline, secondo aspetto analizzato, ha aperto una nuova linea di ricerca sull'impatto ambientale del pomodoro transgenico. Il presente lavoro riporta una sintesi della nostra attività, riunendo quanto più dettagliatamente descritto nei lavori scientifici di ogni singola linea di ricerca effettuata.

Parole chiave: Pomodoro geneticamente modificato, Virus del mosaico del cetriolo, Resistenza acquisita, Emissione di campo, Tracciabilità dei transgeni, Dispersione dei transgeni per polline.

Genetically modified tomato for resistance to virus diseases: production, field evaluation and transgene identification

Since 1991, the Plant Pathology Research Institute of Rome is dealing with genetically modified plants. Three different varieties of tomato were genetically modified for resistance to cucumber mosaic virus. Several field releases demonstrated the efficacy of the used strategy and totally resistant transgenic lines, showing interesting agronomic features, were obtained. The public debate concerning OGM health stimulated other studies on the use of transgenic tomato. First of all, protocols for the identification of transgenes in tomato leaves, fresh fruits and industrially processed fruits were performed. Vertical flow gene by pollen was also evaluated in two transgenic tomato varieties to ascertain the possibility of cross-pollination between transgenic and non transgenic plants when cultivated in open field. This paper briefly reports on ten year activity concerning transgenic tomato production and risk assessment.

Key words: Genetically modified tomato, Cucumber mosaic virus, CP-mediated _resistance, Field release, Transgenes identification, Flow gene by pollen.

Petria **11**(3), 149-157, (2001) Articolo scientifico/*Scientific paper*

***Phytophthora cinnamomi* agente del marciume basale del noce nell'Italia settentrionale**

ALESSANDRA BELISARIO¹, MICHELA MACCARONI¹, ANNA MARIA VETTRAINO²

¹Istituto Sperimentale per la Patologia Vegetale, Via C. G. Bertero, 22, I-00156 Roma

²Dipartimento Protezione delle Piante, Università della Tuscia, Via C. de Lellis, I-01100 Viterbo

Viene segnalata, per la prima volta, *P. cinnamomi* quale agente causale di marciume delle radici e del colletto di piante di noce comune (*Juglans regia* L.). La malattia presenta un quadro sintomatologico simile al 'mal dell'inchiostro' del castagno con tipiche lesioni triangolari brunonerastre originanti dal colletto e risalenti lungo il fusto. A partire dall'estate 1997, sono stati osservati numerosi casi di deperimento di piante di noce comune in frutteti specializzati, allevati a siepe, della Val Padana, siti nelle Province di Alessandria, Treviso e Venezia. L'identità specifica degli isolati, ottenuti dalle tre località, è stata determinata sulla base di caratteristiche morfologiche, colturali e dal confronto di profili elettroforetici delle proteine solubili totali (SDS-PAGE) e di restrizione della regione ITS del DNA ribosomale. La patogenicità su noce di *P. cinnamomi* è stata verificata sperimentalmente.

Parole chiave: *Juglans regia*, Marciume radicale e del colletto, Noce, *Phytophthora cinnamomi*.

***Phytophthora cinnamomi* causal agent of collar and root rot of walnut trees in northern Italy**

Phytophthora cinnamomi was consistently isolated from basal stem tissues of Persian (English) walnut trees (*Juglans regia* L.) affected by collar and root rot. Since summer 1997, the disease has been observed in walnut hedgerow trained orchards located in Alessandria, Treviso e Venice provinces. The isolates were identified on the basis of morphological and cultural characteristics and on the comparison of total soluble proteins (SDS-PAGE) and restriction ITS-rDNA profiles. Pathogenicity tests fulfilled Koch's postulates.

Key words: Collar and root rot, *Juglans regia*, Walnut diseases.

Petria **11**(3), 159-165, (2001) Articolo scientifico/*Scientific paper*

Transgene detection in industrially processed genetically modified tomato

VALENTINA LUMIA VINCENZAI LARDI, LAURAT OMASSOLI, MARINA BARBA

Istituto Sperimentale per la Patologia Vegetale, Via C. G. Bertero, 22, I-00156 Roma

European Regulation (EC/258/97) requires that all genetically modified (GM) food will have to be labelled by the producer. It is a priority to develop protocols able to detect the presence of foreign genes in foodstuff, especially in the processed ones where DNA may be thermally damaged and where inhibiting factors (i.e. oxidant molecules) could be present. A nested PCR method for detection of cucumber mosaic virus coat protein (CMV-CP) and neomycine phosphotransferase II

(NPTII) transgenes in canned tomatoes was developed. The method resulted very sensitive allowing to detect transgenes in processed tomato.

Key words: Genetically modified tomato, Transgene detection, PCR.

Pomodoro geneticamente modificato: rilevamento di transgeni nella salsa alimentare

Il regolamento (CE) n. 258/97 del Parlamento Europeo impone l'etichettatura da parte del produttore degli alimenti geneticamente modificati, rendendo necessario lo sviluppo di protocolli in grado di rilevare la presenza di transgeni in prodotti vegetali di uso alimentare. La trasformazione industriale degli alimenti può danneggiare le strutture del DNA impedendo il rilevamento dei transgeni negli alimenti modificati geneticamente. A tal fine, è stato messo a punto un protocollo molecolare di nested PCR che si è rivelato estremamente sensibile e capace di rilevare i geni codificanti la proteina capsidica del virus del mosaico del cetriolo (CMV-CP) e l'enzima neomicina fosfotransferasi (NPTII) in tutte le linee transgeniche di pomodoro fresco ed inscatolato analizzate.

Parole chiave: Pomodoro geneticamente modificato, Rilevamento di transgeni, PCR.

Petria 11(3), 167-170 (2001) Nota breve/Short note

Il virus dell'avvizzimento maculato del pomodoro (TSWV) in carciofo 'Romanesco' nel Lazio

GRAZIELLA PASQUINI, MARINA BARBA

Istituto Sperimentale per la Patologia Vegetale, Roma, Via C.G. Bertero, 22, I-00156 Roma

Viene segnalata la presenza del virus dell'avvizzimento maculato del pomodoro (TSWV) su piante di carciofo cv. Romanesco in aree di coltivazione laziali. Il virus è stato individuato, tramite ELISA e saggi biologici, in piante manifestanti forti arricciamenti sulle foglie giovani, necrosi più o meno estese sulle foglie e nelle parti apicali delle brattee. Le piante, saggiate in RT-PCR, sono risultate infette anche dal virus latente del carciofo (ArLV).

Parole chiave: Carciofo, cv. Romanesco, TSWV, ArLV

Tomato spotted wilt virus on late artichoke cv. Romanesco in Latium Region

Plants of late artichoke cv. Romanesco, grown in Latium Region, were found infected with *Tomato spotted wilt virus* (TSWV) in mixed infection with *Artichoke latent virus* (ArLV). Plants showed deformation of the young leaves, stunting, leaf and flower head necrosis. The viruses were identified by serological (ELISA), biological (mechanical transmission to herbaceous indicator plants) and molecular (RT-PCR) assays.

Key words: Artichoke, Romanesco, TSWV, ArLV.

Ringraziamenti

I Direttori di Petria rivolgono i più vivi ringraziamenti a tutti coloro che hanno collaborato, nel 2001, all'attività della rivista e in particolare alle seguenti persone, che hanno cooperato alla revisione di manoscritti o hanno espresso pareri su articoli proposti per la stampa su Petria.

Si ringrazia, inoltre, la Sig.ra Paola Velocci, per il prezioso lavoro di videoscrittura e impaginazione.

Acknowledgements

Petria Ediors wish to thank all those people who co-operated during 2001 to the activities of the journal and who reviewed papers.

The Editors thank, also, Mrs Paola Velocci for her worthful typing work.
