

## Contents

<b>Foreword</b>	9
<b>Acknowledgements</b>	11
<b>Introduction</b> (A. Lebeda)	13

## Scientific contributions

### I. General aspects and cultivation

Moravec, J., Kříštková, E. & Lebeda, A. Leafy vegetable growing and breeding in the Czech Republic – history and the present time	17
---	----

Pico, B. & Nuez, F. Leafy vegetables in Precolumbian Mesoamerica	33
---	----

Koudela, M. & Petříková, K. Nutritional value of leaf lettuce cultivars	39
--	----

Nowaczyk, P. & Nowaczyk, L. Estimation of selected cultivars of lettuce ( <i>Lactuca sativa</i> L.) as a forecrop in a greenhouse culture	43
---	----

Malý, I. Effect of the head size on the storability of Beijing cabbage	49
---	----

Petříková, K. <i>Montia perfoliata</i> Donn ex Wild ( <i>Claytonia perfoliata</i> D.) – possibilities of cultivation	53
--	----

### II. Genetic resources

Hintum, Th.J.L. van & Boukema, I.W. Genetic resources of leafy vegetables	59
--	----

Pico, B. & Nuez, F. Genetic resources of leafy crops in the Genebank of the Polytechnic University of Valencia	73
--	----

Lebeda, A. & Astley, D. World genetic resources of <i>Lactuca</i> spp., their taxonomy and biodiversity	81
---	----

Koopman, W.J.M.	
Plant systematics as a useful tool for plant breeders: examples from lettuce	95
Hintum, Th.J.L. van	
Improving the management of genebanks: A solution from biotechnology	107
Kříštková, E. & Lebeda, A.	
Collection of <i>Lactuca</i> spp. genetic resources in the Czech Republic	109
Lebeda, A., Doležalová, I., Kříštková, E., Vinter, V., Vránová, O., Doležal, K., Tarkowski, P., Petrželová, I., Trávníček, B., Novotný, R. & Janeček, J.	
Complex research of taxonomy and ecobiology of wild <i>Lactuca</i> spp. genetic resources	117
Kohpayegani, G.A.	
Genetic diversity of tareh Irani <i>Allium ampeloprasum</i> ssp. <i>persicum</i> based on morphological characters	133
<b>III. Diseases and pests</b>	
Reinink, K.	
Lettuce resistance breeding	139
Arend, A.J.M.van der, Ester, A. & Schijndel, J.T. van	
Developing an aphid resistant butterhead lettuce „Dynamite”	149
Mazier, M., Dinant, S., Bellec, Y., Gaudefroy, F., Chupeau, Y. & Maisonneuve, B.	
Transgenic lettuce for lettuce mosaic potyvirus resistance	159
Navrátil, M., Fialová, R., Válová, P., Šimková, M., Fránová, J. & Nebesářová, J.	
Lettuce ( <i>Lactuca sativa</i> L.): a phytoplasma host in the Czech Republic	165
Ettekoven, K. van & Arend, A.J.M. van der	
Identification and denomination of „new” races of <i>Bremia lactucae</i>	171
Guénard, M., Cadot, V., Boulineau, F. & De Fontanges, H.	
Collaboration between breeders and GEVES-SNES for the harmonization and evaluation of a disease resistance test: <i>Bremia lactucae</i> of the lettuce	177

Lebeda, A. & Zinkernagel, V. Durability of race-specific resistance in lettuce against lettuce downy mildew ( <i>Bremia lactucae</i> )	183
Maisonneuve, B., Bellec, Y., Souche, S. & Lot, H. New resistances against downy mildew and lettuce mosaic potyvirus in wild <i>Lactuca</i> spp.	191
Sedlářová, M., Lebeda, A. & Binarová, P. Reorganization of microtubular cytoskeleton in <i>Lactuca</i> spp. cells during early stages of infection by lettuce downy mildew ( <i>Bremia lactucae</i> )	199
Pietrek, G. & Zinkernagel, V. <i>Peronospora valerianellae</i> , the downy mildew of Lamb's lettuce ( <i>Valerianella locusta</i> )	205
Marthe, F., Scholze, P., Klocke, E. & Ryschka, U. Amplification of the genetic base of <i>Brassica oleracea</i> by introgression of resistance genes to <i>Phoma lingam</i> from <i>Brassica nigra</i>	211
Scholze, P., Krämer, R., Ryschka, U., Klocke, E. & Schumann, G. Multiple disease resistance in cruciferous vegetables	217

#### **IV. Genetic improvement and biotechnology**

Ryder, E.J. Genetics in lettuce breeding: past, present and future	225
Timin, N.I. The inheritance of traits in lettuce ( <i>Lactuca sativa</i> L.)	233
Mazier, M., Maisonneuve, B., Bellec, Y., Chupeau, M.C., Souche, S. & Chupeau, Y. Interest of protoplasts for lettuce breeding	239
Curtis, I.S. Genetic improvement of lettuce by <i>Agrobacterium</i> -mediated gene transfer	245
McCabe, M.S., Mohapatra, U., Power, J.B. & Davey, M.R. Instability of transgene expression in lettuce ( <i>Lactuca sativa</i> L.): possible causes and prevention	251

Hirata, Y., Xiao, Q.B., Rhaman, R., Noguchi, T. & Morikawa, K.  
Cell to cell interactions in artificially-synthesized chimeras  
in Cruciferae

257

Hirata, Y., Motegi, T. & Kameya, T.  
Stoichiometric shifts of cytoplasmic genomes with cytoplasmic male  
sterility induced by chimera synthesis and somatic hybridization

263

Kuginuki, Y., Tsukazaki, H., Hida, K., Hinata, K. & Takasaki, T.  
*Agrobacterium tumefaciens* – mediated transformation of *Brassica*  
vegetables

269

López Anido, F.S., Cointry, E.L., Firpo, I.T. & García, S.M.  
Heritability for green and white asparagus yield

277

Peilai, H., Zhenglai, Z., Shihua, L., Gezhi, S., Liming, C. & Lin, J.  
Anther culture and plant regeneration for *Asparagus officinalis*

281

Miyashita, Ch., Hirata, Y. & Takahashi, N.  
Environmentally-induced genetic changes of anthocyanin  
pigmentation in Mitsuba (*Cryptotaenia japonica* Hassk)

287

## Authors index

295

## List of participants

295