

## Preface

Plant breeding has improved our crops over thousands of years, first as an art performed by ancient farmers and then as a science applied by modern breeders. Despite its enormous contribution to the development of our crops from weedy species into cultivated varieties with superior yield and quality properties, plant breeding has been notoriously clumsy and slow. Now, mostly thanks to transgenic technology that eliminates the need for sexual compatibility between parent materials, and the use of molecular markers and tissue culture techniques, plant breeding science has been quietly transformed. It is a privilege, pleasure, and honour to present to the international scientific community a special issue of the *Turkish Journal of Agriculture and Forestry* covering new developments in plant breeding methodologies.

This special issue comprises four review and four full length research articles covering the topics of structural genomics and haploid production. The manuscript subjects range widely in terms of species and geography. Hussain reviews and compares the conventional and molecular breeding techniques used in breeding for biotic stress resistance in agricultural crops. Bakhsh et al. give detailed information about the advances and challenges of insect resistant transgenic crops. Kandemir and Saygılı explain the apomixis phenomenon and its potential impact in shaping the future of plant improvement programmes. Tek et al. highlight centromere engineering to overcome the limitations of crops in haploid plant production. Türkođlu et al. determine resistance against root knot nematodes (*Meloidogyne* spp.) among seven almond varieties and their F1 hybrids and propose two markers that could be appropriate to use for determining sensitivity to nematodes in almond rootstocks. Hendawy et al. investigate whether spectral reflectance indices could be used to estimate different destructive morpho-physiological traits of a diverse range of spring wheat germplasm in a rapid and nondestructive manner. Kahrıman et al. report quantitative trait loci for flowering time in a lentil RIL population derived from an intraspecific cross of Precoz × WA8649041 using 149 markers. Finally, Grouh et al. report the first successful regeneration of haploid lines by pollen irradiation in iris (*I. pseudacorus*) developed by in situ parthenogenesis followed by embryo rescue.

The papers published in this special issue are easily available in the form of open access papers at the website of the *Turkish Journal of Agriculture and Forestry*. Our journal has been honoured to have an enormous number of articles submitted from all over the world. We hope that this special issue will deliver valuable information to the scientific community about the topics addressed in the issue.

### Acknowledgments

The editors thank the authors and management of the journal for their continued interest that helped the guest editors to maintain the highest ethical standards to ensure the publication of high-quality original scientific material in the journal. It has all been possible due to their hard work, dedication, and team work.

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