

# BOOK OF ABSTRACTS

## 3rd International Conference on Plant Biology (22nd SPSS Meeting)



9-12 JUNE 2018  
BELGRADE



**Serbian Plant Physiology Society**

**Institute for Biological Research "Siniša Stanković", University of Belgrade**

**Faculty of Biology, University of Belgrade**

**3<sup>rd</sup> International Conference  
on Plant Biology  
(22<sup>nd</sup> SPPS Meeting)**



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## Evaluation of anticancer activity of *Plectranthus* spp. extracts

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The genus *Plectranthus* has been widely used in traditional medicine to treat numerous diseases, including cancer. In this study, 31 extracts obtained from 16 *Plectranthus* spp. with medicinal potential were evaluated for their anticancer properties. The cytotoxic effects of all extracts were assessed in non-small cell lung carcinoma cell line NCI-H460. Five most promising *Plectranthus* spp. extracts (*P. aliciae*, *P. japonicus*, *P. malvinus*, *P. stylesii* and *P. strigosus*) were additionally tested for growth inhibition activity in multidrug resistant (MDR) cell lines with P-glycoprotein overexpression: NCI-H460/R (non-small cell lung carcinoma) and DLD1-TxR (colorectal adenocarcinoma), and compared to their sensitive counterparts, NCI-H460 and DLD1. *P. strigosus* acetonic extract was shown to be the most active. Parvifloron D, a diterpene identified in this extract, was tested in NCI-H460 and NCI-H460/R cells, as well as normal human embryonic bronchial fibroblasts (MRC-5) to evaluate its selectivity against cancer cells. It displayed the same efficacy in sensitive and MDR cancer cells, implying that parvifloron D is not a substrate for P-glycoprotein. Flow-cytometric analysis revealed that while parvifloron D is not exported via the P-glycoprotein, it does not possess the potential to inhibit this transporter's activity in NCI-H460/R cells. This study provides valuable information on the use of the *Plectranthus* genus as a source of therapeutically useful compounds against cancer cells including those with MDR phenotype, as well as compounds potentially responsible for their activity such as abietane diterpene parvifloron D. Additionally, the bioactivities of several *Plectranthus* spp. not previously described are reported.

**Keywords:** *Plectranthus*, anticancer activity, parvifloron D