

Summary Report of Dr Nitin Labhane to Hungary

I am highly grateful to Tempus Public Foundation for awarding me the fellowship to visit one of the prestigious laboratories of Prof (Dr) Laszlo Szabados, Department of Plant Biology, Biological Research Centre, Szeged, Hungary in Europe. I was awarded the same fellowship last year also but could not realise it due to Covid-19 pandemic conditions.

I left from India on 6th October 2022 and reached Budapest on same day. I was pleased to have Mr Tibor from Tempus Public Foundation to receive me at the airport and do all the formalities of signing the contract documents. He was kind enough to help me board the train to Szeged. This shows the beautiful heart of Hungarian people and I had become a great fan of Hungary and Hungarian people.

I was accommodated by my mentor Professor Laszlo Szabados at his residence during the entire period of my stay in Hungary. I joined my laboratory the very next day and had detailed discussion with my mentor about the research I need to do during my stay in Hungary. He helped me to plan my research work on Small Paraquat resistance protein (SPQ) and its role in various developmental aspects. The importance of it is evident from the fact that the SPQ- like proteins are present in all plants including Arabidopsis, where it is encoded by a single gene. The function of Arabidopsis and Lepidium SPQs seems to be conserved as both LcSPQ and AtSPQ, which could confer paraquat resistance to overexpressing plants. SPQs represent a previously unknown class of signalling Small Proteins, which are implicated in stress response regulation. Identification of such molecules which can induce stress resistance are important in the backdrop of climate change. Both SPQs enhanced ABA sensitivity and increased drought tolerance of Arabidopsis (Faragó et al, 2022; Rigo et al, 2016).

The mutants of the same were studied and compared with the Columbia wild type Arabidopsis plant which were not studied in the earlier.

Some of the experiments planned were studying-

- The epidermal pattern and the stomata's in both the SPQ overexpressing plants and its mutants.
- Development of root and its pattern in both the SPQ overexpressing plants and its mutants.
- Studying the embryo development in both the SPQ overexpressing plants and its mutants.
- Proline studies and other studies.

We got some good results which will further enhance our understanding of the role of SPQ in developmental processes in Arabidopsis.

The collaboration was very successful which will further help me to disseminate the knowledge I had gained during my stay at Hungary to my undergraduate, post graduate and doctoral students.

I left for India from Hungary on 3rd of November 2022 and reached Mumbai on 4th of November 2022. I am very much thankful to all the officials both from Hungary who directly or indirectly involved in the sanctioning of my fellowship and my parent Institution (Bhavan's College, Andheri, Mumbai-58) who also supported the required logistics for the Visa processes and other related help. Tempus public foundation is doing a great job of giving opportunities to several researchers from different countries to explore the possibilities of international collaboration for scientific advancement.

Wishing Tempus Public foundation all the very best in their future endeavours.

Thanks, and regards,

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