

Review
on
PhD thesis

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Title: **Molecular and cellular aspects of programmed cell death in response to genotoxics in plants**

Reviewer: **Prof. RNDr. Ladislav Havel, CSc.**

Mendel in Brno

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The topic of presented PhD thesis is very important in the context of current plant biology. A lot of new observations have been done and new views have been postulated in the area of programmed cell death (PCD) in plants for last about twenty years. The aims of this thesis were to extend this fast developing scientific field.

Fro this purpose a simplified system at the unicellular level was used to characterize the influence of the double strand breaks inducer bleomycin on PCD and the role of E2F factor during bleomycin induced PCD in plants. The third part of this thesis was done on whole plant level, in root of *Arabidopsis*, respectively, to proof the link between cell and organ response.

The thesis is structured classically. The introduction represents an overview of the topic in the broader context. This chapter suggests that Mgr. Smetana is oriented in the topic very well. This text should be published.

The used methods are adequate to questions under study. I have to stress how many methodical approaches Mgr. Smetana was able to make up.

The results show that more than original goals were fulfilled. The obtained data are precisely summarized and documented. Several particular results are quite new not described

yet. The images are clear and well described. Only in some cases they could be a little bit bigger and the scale is missing in some of them.

The discussion suggests Mgr. Smetana's critical approach. He stressed similarities, dissimilarities of his findings and findings other authors. He is able to postulate new hypotheses which are based on critical comparison of his data with present literature. They are not simple speculations.

The thesis is written very well. It is readable. The only thing that I have not found is the list of abbreviations. It could help a reader who is not familiar with the field enough.

The literature cited is adequate to the topic. I miss a citation to presented ploidy level on page 18.

I have no special questions. As I already stressed the whole text comprehensible. Some tiny details I will leave for the scientific discussion during the defense.

Conclusion

The PhD thesis suggests that Mgr. Ondřej Smetana is able to work independently; put together his results and summarize them. His work has originally contributed to the plant biology in special field and also in general. I recommend his PhD thesis for successful defense.

In Brno September 13, 2010