

HABILITATION THESIS – EVALUATION

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Evaluator: Prof. RNDr. Alexander Lux, CSc., Comenius University in Bratislava, Slovakia

The Habilitation Thesis submitted by Georgios Komis, Ph.D. represents excellent review of the present knowledge about plant cytoskeleton based on numerous original contributions of Dr. Komis and co-workers over almost two decades of research. The original results are put into context with the recent literature and I really liked the opportunity to read the submitted thesis and a number of recent facts about these important plant cell components. The main text including References and List of abbreviations is on 45 pages and it is accompanied by an Annex of author's 15 selected publications dealing with the topic of the thesis. These publications are from years 2001 – 2018 and all have been published in highly ranked international journals.

I am not going to repeat and describe the results and new findings of the author, which will be certainly explained during the presentation and the defence of the thesis. I prefer to give some suggestions and questions for the scientific discussion which will follow this part of the defence.

The author of the Thesis observes and investigates plant cells from his viewpoint and orientation focused on the cytoskeleton. In the text (p.5) it is written: ... differentiation of plants ... depends on the coordinated response of multicellular assemblies to tension forces...and the formation of unique cytoskeletal arrays that predetermine polarity of cell division and cell division plane orientation. Can we imagine some other factors and organ, tissue and cell characteristics which could regulate differentiation of plant organs and cells?

Two types of plasmolysis are described – convex and concave. Which factors predetermine the form of plasmolysis in individual cell? Is it cell type, stage of differentiation, age, or any other factor?

The term macrotubules is used in the text and some published papers. What is the recent opinion of this cell structure in the (plant) cell literature? Is it a specificity of some species, or some specific cell type?

Will you kindly specify which type of meristematic cells was observed in the root of *Triticum*? Position predetermination of individual cell types in roots (especially in the case of grasses) starts very early and this can influence some structural differences in the cell level.

Specific vacuolated cells in the root apex of *Chlorophyton* (correct spelling is *Chlorophytum*?) is characteristic of this species/genus/family, or is it related with the specific flashy root occurring in this species and thus it can be found also in other unrelated species with the similar type of the root?

The text is generally very well written and easy to follow. I have found only a small number of formal mistakes, marked in the text and in References.

Some minor comments:

- P. 18, sentence : At the onset of the hyperosmotic exposure... is somehow unclear
- The order of pages after p.22 is mixed
- The scales are missing in Figs. included in the text of the Thesis (used from published papers). The scales would facilitate the understanding of the Figs. to the reader.
- In caption to Fig. 15 (p. 28) Figs. M – U are described, but they are not present in the picture.

The listed comments do not decrease evaluation of the submitted thesis which I rank very high and I highly recommend to accept it as Habilitation Thesis and after successful defence I propose to the committee to recommend to the Dean of Faculty to award the degree “Docent” to Georgios Komis, Ph.D.



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