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Amyloid formation is a widespread phenomenon in land plant species

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Motivation and Aim: Amyloids are highly ordered protein aggregates best known for their association with dozens of incurable diseases in humans and animals. However, numerous recent studies have demonstrated the functional significance of amyloid formation in different species of archaea, bacteria, and eukarya. Plants represent a poorly studied group in the field of amyloid biology, in which amyloids had not been identified before our studies.

Methods and Algorithms: Different bioinformatic and experimental methods were used as described in [1] and [2].

Results: Bioinformatic prediction of the distribution of potentially amyloidogenic regions in proteomes of 76 land plant species have revealed an unusual enrichment of seed storage and defense proteins with such regions [1]. Later, first plant protein that forms amyloids under native conditions *in vivo* has been discovered [2]. Proteomic analysis of seeds from different plant species has revealed a set of proteins forming amyloid-like aggregates *in vivo* (unpublished data).

Conclusion: The data obtained suggest that seed storage proteins of different plant species are enriched with potentially amyloidogenic regions. Experimental verification confirmed amyloid properties of several plant proteins *in vivo* [2 and unpublished data]. Overall, these data demonstrate the widespread occurrence and functional significance of the phenomenon of amyloidogenesis in land plants.

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