
Biosilicification in plants: chemistry, function and analysis

Carole Perry*†¹

¹Interdisciplinary Biomedical Research Centre, Nottingham Trent University – Clifton Lane,
Nottingham NG11 8NS, Royaume-Uni

Résumé

Biosilicification in plants and other organisms is a complex process under biological control that generates materials that act to protect and in some cases boost plant function. As well as transport of the ‘element’ in some form, control over nucleation, growth, aggregation and cessation of growth is required in order to generate the wonderful silicified structures that are found in a wide range of plants. All processes occur in a largely aqueous environment and the silica structures that form vary from plant to plant and sometimes many different structures can be found within a single plant cell! Using examples from the work of my research group and others, I will present the current level of understanding about the solution chemistry of ‘silicon’ pertinent to both the soil environment and to the environment in which silicified deposits form. I will provide information on how silica structures form and how these structures can be modified by contact with an environment that includes ions and/or biomolecules. I will discuss a range of methods that can be used to analyze for the presence of ‘silicon’ in solution and the solid state and present a new approach for the analysis of silicified structures including phytoliths.

Mots-Clés: Biosilicification

*Intervenant

†Auteur correspondant: carole.perry@ntu.ac.uk