# Protein corona of Hevea brasiliensis field latex

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Hevea brasiliensis field latex are known to be stabilized by a complex interfacial layer composed mainly of proteins and lipids, forming a so-called protein corona surrounding the rubber particles. This surface layer plays a key role in determining the surface charge and colloidal stability of latex dispersions [1, 2, 3]. However, the nature, distribution, and role of these corona proteins in stabilizing the latex particles remain incompletely understood. In this work, we investigate the electrokinetic properties of field latex and the behavior of its protein corona in order to better understand the mechanisms governing latex stability. First, the electrokinetic behavior of Hevea brasiliensis field latex were investigated by examining the effects of ionic strength and pH on electrophoretic mobility. Fitting the mobility data using Ohshima's soft particle model yielded a charge density $Z_N$ of approximately −373 mM and an ionic permeability layer thickness of ~2 nm, confirming the presence of a permeable polymer corona at the particle surface [4]. The effect of pH (2–12) revealed an isoelectric point around pH 3.5–4.0, consistent with the fact that the surface charge of field latex is imposed by the amphoteric properties of proteins on the latex external corona [2]. Then, we looked at the nature and distribution of these proteins. Adsorption of a cationic surfactant, sodium dodecyl sulfate (SDS), led to an increased negative electrophoretic mobility and more importantly to displacement of proteins from the latex corona to the serum [5]. An analysis of the total amount of the displaced proteins and of their nature by proteonomics is currently underway. The ultimate goal is to get a more precise description of the proteins stabilizing field hevea latex. Current work also aims to elucidate the interaction between SDS and the protein corona, by determining whether SDS primarily adsorbs onto the latex particle surface, partially replaces surface proteins, or whether both mechanisms occur simultaneously, through comparative analysis of protein distribution in the cream and serum phases.

**Keywords:**
Hevea brasiliensis field latex, Colloidal stability, Protein corona

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**Acknowledgements:**
Dr. Marc Couty from MICHELIN is gratefully acknowledged for providing the field latex samples. Dr. Celine Bottier of CIRAD (Montpellier, France) provided important advices and comments.