



## Prof. Bernard Cabane

LCMD, ESPCI

Paris

---

"Interactions between plant tannins  
and human salivary proteins"

---

**Wednesday,  
19 December 2018**

12:00 refreshments

12:30 lecture

---

**Wang Auditorium**

The Dalia Maydan Building

Faculty of Materials Science and Engineering

**RBNI**  
**Monthly  
Seminar  
Series**  
**2018**



# Interactions between plant tannins and human salivary proteins

B. Cabane

LCMD, ESPCI, Paris, France

bernard.cabane@espci.fr

Plants synthesize tannins for protection against enzymes released by parasites and predators. Tannins are phenolic compounds that bind to proteins in solution and cause them to precipitate. When eating or drinking food that contain tannins, the binding of tannins to proteins in the mouth causes astringency, and their binding to digestive enzymes results in reduced digestibility of food. In order to evade the anti-nutritional effects of tannins, herbivores and humans produce proline-rich proteins (PRPs) in their saliva. Using Small Angle X ray Scattering and Mass Spectrometry, we studied the interactions of two PRPs with a simple tannin, EGCG, extracted from green tea. Both PRPs were produced by the recombinant pathway. II-1 is a glycosylated PRP with a disordered structure. On binding EGCG, it self-associates into micelles that act as tannin traps. This association is triggered at a set tannin concentration; it may regulate the concentration of free tannins in ingested food. IB5 is a very small PRP with a disordered structure and highly extended conformations. Upon binding EGCG, it aggregates and precipitates. This could be a cause of astringency, which is experienced as a loss of lubrication in the mouth.