Resveratrol interaction with model membrane system: an AFM Study

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Trans-resveratrol is a growing chemopreventative agent, due to its effect on cancer. Harnessing its chemotherapeutic potential is hampered by its poor pharmacokinetics. This study investigates the interaction of resveratrol with supported lipid bilayers using atomic force microscopy (AFM).

Resveratrol, a polyphenolic compound with known health benefits, was analyzed for its effects on lipid bilayer structure and stability. Supported lipid bilayers were prepared by DOPC, DSPC, and sphingomyelin with 7% and 33% cholesterol concentrations, on a mica substrate and exposed to 1μM, 5μM, and 10μM concentrations of resveratrol. AFM imaging revealed the deposition of resveratrol on the rafts, which caused an increase in the height of the rafts and alterations in surface roughness and raft thickness. These observations suggest that resveratrol interacts with lipid rafts in the 7% and 33% supported lipid bilayers, potentially influencing their fluidity. The study provides insights into the molecular interactions between resveratrol and lipid membranes, which may be relevant for understanding its bioactivity and therapeutic potential.

References

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