

Self assembly and physico-chemical properties of Vitamin C derivatives: the role of hydrogen bonding

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Ascorbyl alkanoates (ASC_n) bear a L-ascorbic acid residue as polar headgroup, and an aliphatic chain with "n" carbons. These chemicals possess peculiar properties, e.g. their aqueous dispersions form semihydrated crystalline phases ("coagels") that convert into a micellar solution or a "gel" upon heating, depending on the length of the hydrocarbon tail.

When the headgroup is replaced with a D-isoascorbic acid, the properties of the self-assembled nanoaggregates change significantly, as a result of the different set of intra- and intermolecular interactions.

We discuss the role of hydrogen bonding in determining, at least partly, the morphology and physico-chemical properties of the assemblies.