

## PP 2 - Novel Peptide Chitosan Derivatives – Some Physico-chemical Properties

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Owing to its renewable and biocompatible nature, chitosan (CT), and its new derivatives, provide potential for multiple applications. Most applications of CT are based on its amino groups as they play an important role on its solubility, metal ion sorption as a function of pH [1], and as a target derivatization anchor. Recently, we have synthesized new peptide CT derivatives -propanoyl-AA)chitosans, being AA the following aminoγ[2,3] (PCTD), viz, N-( acids: phenylalanine, glycine, aspartic acid and valine, with different substitution degrees (0.18, 0.26, 0.27 and 0.32). Thermal behaviour (DSC), acid-base (pKa) and metal (Cu(II), at 1:1 and 1:2 PCTD:Cu(II) ratios) complexation properties were studied. SEM photographs have shown different morphologies among the PCTD, which are markedly different from CT. Downward shifts of endothermic and exothermic peak temperature suggests a change in the chemical and supramolecular structure of CT. The additional amino and carboxylic groups introduced by the substituent modify the water hold capacity, which seems to increase with the hydrophilic character of the peptide functional group. The thermo-degradation peak temperature seems to depend also on the nature of the AA.

The PCTD have shown a decrease in the isoelectric point of the AA and the formation of stable complexes with Cu(II) in the acid pH range.