COLLOIDAL STABILITY AND RELEASE OF NANO-CAPSULES WITH PERFUME CONTENT

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The colloidal stability of two different types of nano-capsules (approx. diameter 100 nm) with perfume inner content was determined as a function of pH [1], and 1:1, 2:1 and 3:1 electrolyte concentration.

The electrophoretic mobility of the nano-capsules was measured for different pH values. Although the zeta-potential (ζ) was always negative for both type of nano-capsules, it diminished at low values of pH, the predicted isoelectric point being near to pH 1.5. At high pH values (from 6 to 12), capsules showed better colloidal stability, with zeta-potentials around -45mV.

Interestingly, two different zeta potential distribution values were obtained at pH 2 for one type of nano-capsules, representing a change in the structure of the capsule surface. This phenomenon was observed with Transmission Electron Microscopy (TEM), showing inner content release.

The electrophoretic mobility of the nano-capsules was measured for different salts (NaCl, $CaCl_2$ and $AlCl_3$) at different concentrations in distilled water [2]. The zeta potential diminished with the monovalent salt, while charge inversion was found for the multivalent salts. High-resolution TEM images were used to verify these results.

References:

[1] David R.E. Snoswell, Jinming Duan, Daniel Fornasiero, John Ralston, Journal of Colloid and Interface Science, **292** (2005) 526-535.

[2] Gleb Sukhorukov, Milan Brumen, Edwin Donath, Helmuth Möhwald Journal of Physical Chemistry B, **103** (1999) 6434-6440.

Figures:

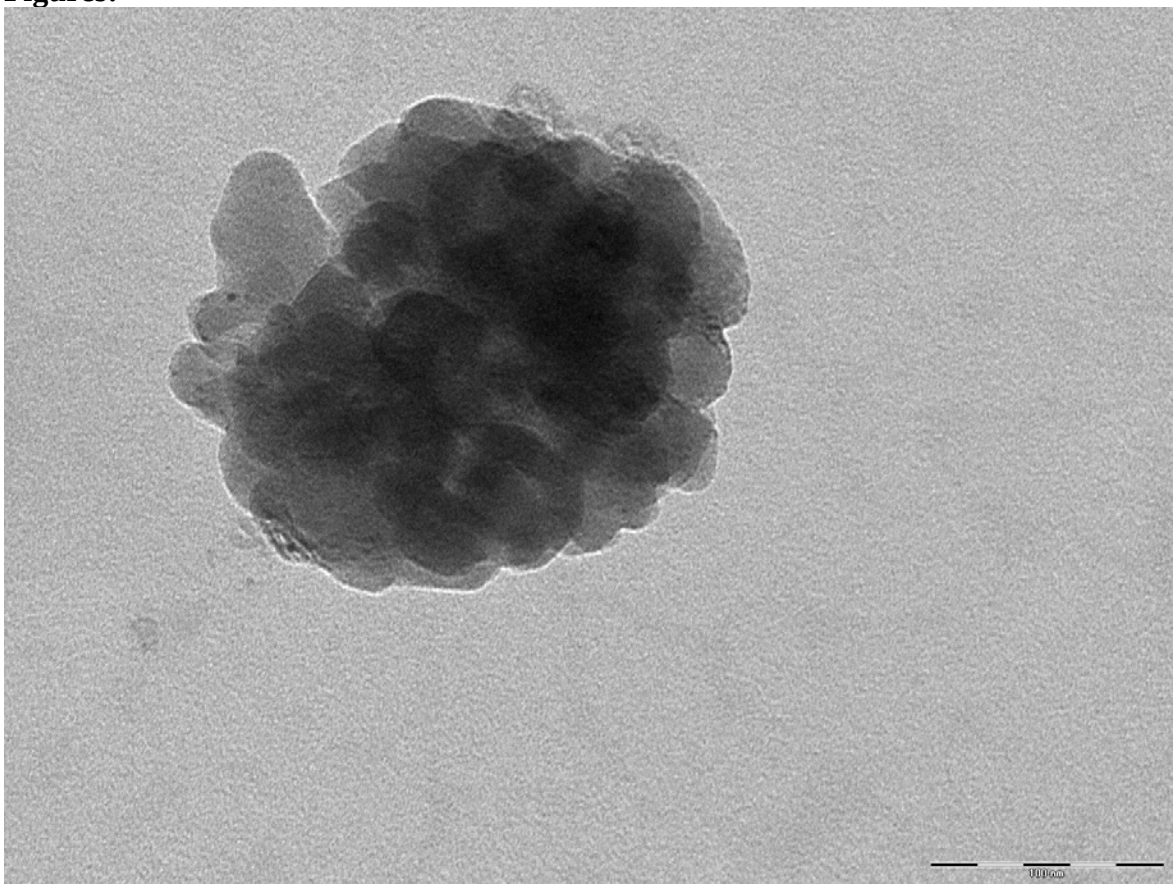

Fig. 1: Capsule releasing inner content at pH 2.

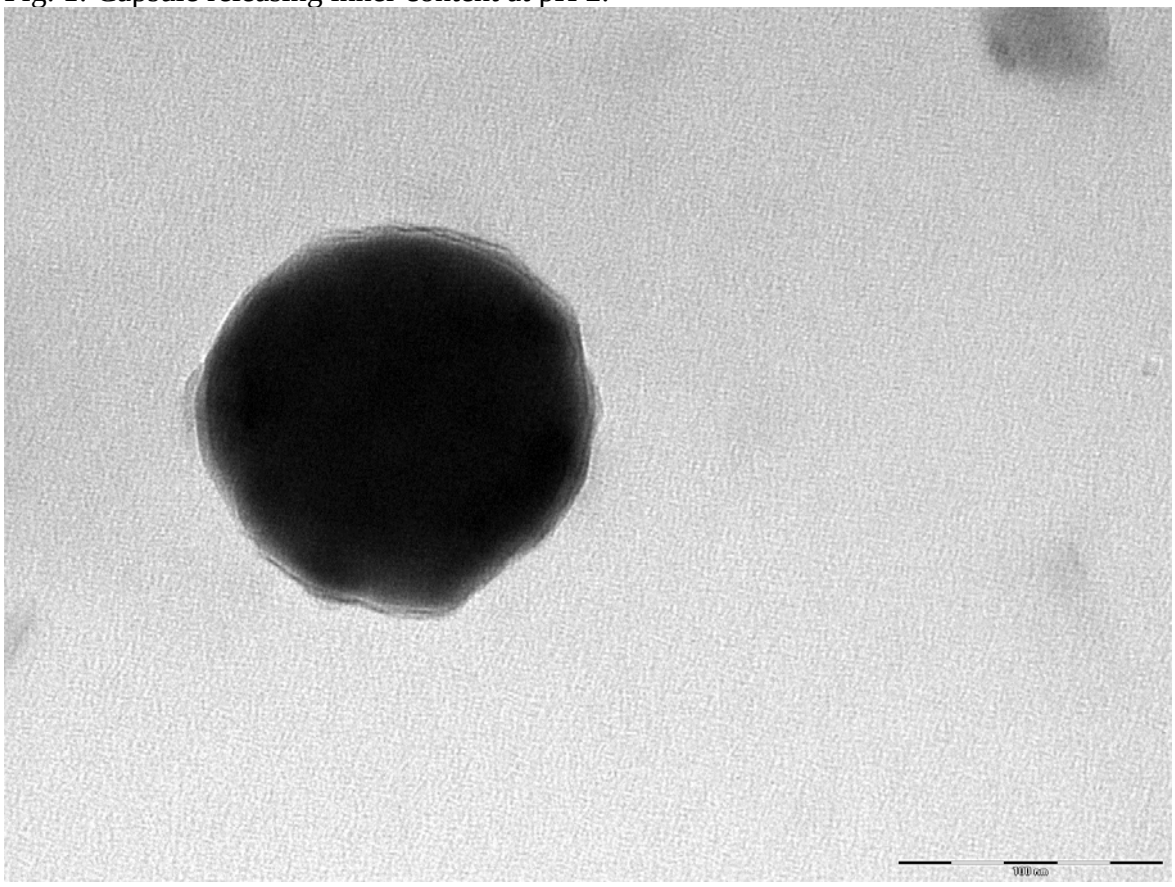

Fig. 2: Stable particle not releasing inner content at pH 6.