

ABSTRACT

5 **PHARMACEUTICAL FORMULATIONS FOR THE PROLONGED
RELEASE OF ACTIVE PRINCIPLE(S), AND THEIR APPLICATIONS,
ESPECIALLY THERAPEUTIC APPLICATIONS**

10 The present invention relates to novel pharmaceutical formulations based on aqueous colloidal suspensions for the prolonged release of one or more active principles – AP – particularly protein and peptide active principles, and to the applications, especially therapeutic applications, of these formulations.

15 This formulation comprises an aqueous colloidal suspension of low viscosity based on micrometric particles of a water-soluble, biodegradable, amphiphilic polymer PO carrying hydrophobic groups (GH) – alpha-tocopherol – and ionizable hydrophilic groups (GI) – Glu – that are at least partially ionized, said particles being capable of associating spontaneously and non-covalently with an AP, at pH = 7.0, under isotonic conditions, and having a size of between 0.5 and 100 μm . This suspension contains multivalent ions (Mg^{++}) of opposite polarity to that of the group GI of the PO, the ratio r, defined by the formula $r = n \times \frac{[IM]}{[GI]}$,

where

- 20 - n is the valency of said multivalent ions,
 - [IM] is the molar concentration of multivalent ions,
 - [GI] is the molar concentration of ionizable groups GI,
being between 0.3 and 10.