

## ABSTRACT

### **The Effect of Type and Concentration of Stabilizers on Particle Size of Nanosuspensions Literature review**

Rachmad Lusia

The aim of this study is to determine the effect of type and concentration of stabilizers on particle size of nanosuspensions. The role of stabilizer is important in the formation of stable nanosuspensions. Nanosuspension is one of drug delivery approaches for commercial development of poorly soluble drug molecules. In this review, literature searches were carried out through two databases. Of the 1569 literatures obtained, only 71 literatures were selected based on established requirements. The type and concentration of stabilizers most commonly used to produce nanosuspensions with certain particle sizes with wet beads milling method were found. Using the combination of surfactant and polymer as stabilizers has the advantage of producing smaller particle size due to its more optimal stabilization effect over a single stabilizer. The combination of surfactant and polymer (SLS and PVP, CCS and HPMC-AS, CCS and CP, CCS and H- $\beta$ -CD) with higher concentration (more than 40% w/w) as well as single stabilizer (HPMC E3 or SDS) with lower concentration (under 2,5% w/w) can produce drug particles under 100 nm. In addition, the combination of surfactant and polymer (SDS and HPC SL) and single non ionic surfactant (poloxamer 188 or TPGS) can produce drug particles sizes 101-200 nm with low concentration. Nanosuspension with particle size 101-200 nm is preferred due to the possibility of significant increase in the solubility of drug substance and easier handing process during solidification.

**Keywords:** Nanosuspension, Wet Beads milling, Particle Size, Stabilizers