

Thesis Title Zeta Potential Characteristic of Sul-
famethoxazole and Trimethoprim.
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ABSTRACT

The influence of various ingredients on the zeta potential characteristic of sulfamethoxazole and trimethoprim in suspension were determined. The surface charge of both drugs which dispersed in aqueous dispersion depended on pH of a suspension. The natural zeta potential of sulfamethoxazole and trimethoprim was found to be high negative value. The addition of electrolyte caused an electrical discharge of the particles and resulted in a decrease of the zeta potential. The strength of this influence depended on the valency of counterions according to Schulze-Hardy rule. The zeta potential of both drugs was not affected by the addition of Tween 40 (non-ionic surfactant), whilst sodium lauryl sulfate (anionic surfactant) increased the negative zeta potential. The charge of a particle was changed by the addition of polymers either methyl cellulose or sodium carboxymethylcellulose. The additives, i.e. sorbitol, glycerin and syrup, decreased the negative zeta potential

of both drugs but the preservatives only decreased the zeta potential of trimethoprim.

Co-trimoxazole suspensions that contained sulfamethoxazole and trimethoprim were prepared by evaluating the results from the previous study. Crystal growth occurred when both drugs were mixed together. This problem was eliminated by the incorporation of 1.0 % w/v sodium carboxymethylcellulose and above. Therefore, suspension contained 1.0 % w/v sodium carboxymethylcellulose was used as a basic formula. The various formulas of co-trimoxazole suspensions were subjected to the physical stability study. The optimum formulas which were allowed to stand for six months exhibited 100 % sedimentation volume with redispersibility value of 1.