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RESEARCH PAPER

COMBINED EFFECT OF HPMC K100M AND EUDRAGIT L/100-55 ON RELEASE RATE OF ANTICONVULSANT DRUG

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The present study aims to check the influence of HPMC K100M and Eudragit L/100-55 on the Divalproex sodium release from modified release tablet dosage form. Divalproex sodium, an anti-convulsant/epileptic agent, is used in the effective management of bipolar disorders, mania, seizures, convulsions and tremors/epilepsy. The current research objective was to achieve 90% of drug release at 8-12 hrs. Extended-release tablets of Divalproex sodium were prepared using various proportions of Eudragit L/100-55, HPMC K100M by direct compression technique. Nine formulations were developed and characterized for pharmacopoeial limits. Results for all evaluation tests were found satisfactory. Drug release profiles were subjected to kinetic modeling to determine the kinetic parameters. Formulation (DEH_5) containing equal quantities i.e. 31.25 mg of Eudragit L/100-55 and HPMC K100M, was found to be the best formulation showing similarity factor f_2=85.75 and difference factor f_1=2.29 with the reference marketed product (DIVALEX). Formulation DEH_5 followed zero order, whereas release mechanism was non-Fickian type transport.

Key words: Divalproex sodium, Extended-release, Anticonvulsant, Eudragit L/100-55, HPMC K100M.

INTRODUCTION

Extended-release drugs are beneficial for long-term care because they help maintain a consistent level of medication in the body. XL (Extra Long/Extra Large); LA (Long acting); XR (Extended Release) are popularly used symbols for modified or extended formulations. They show much reduction in the repeated administration of formulation approximately to two-folds, thereby, improve patient compliance and also maintain good clinical response [1-2].

Divalproex sodium, antiepileptic; a stable moiety contains 1:1 ratio of valproic acid and sodium valproate formed by the partial neutralization of valproic acid when treated with sodium hydroxide. Its chemical name is sodium; 2-propylpentanoate; 2-propylpentanoic acid (**Figure 1**). It is ionized in GI fluids and dissociated into valproate ion [3-5].

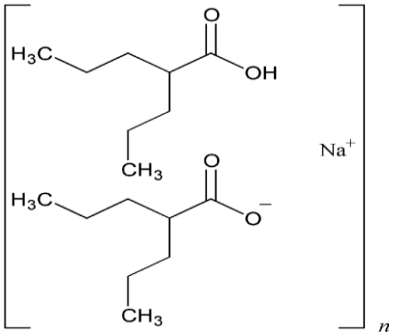

Fig. 1. Structure of Divalproex sodium

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