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Liquid chromatographic method for the determination of Olopatadine in pharmaceutical formulations

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An isocratic RP-HPLC method was proposed for the determination of Olopatadine in pharmaceutical formulations. Olopatadine hydrochloride is an anti-allergic agent with histamineH1 receptor antagonistic action, prescribed for patients with signs and symptoms of AR, chronic urticaria, eczema dermatitis, prurigo, pruritis cutaneous, psoriasis vulgaris and erythema exsudativum multiform. It is chemically {(11Z)-11-[3-(dimethylamino) propylidene]-6, 11-dihydrodibenzo [b, e] oxepin-2-yl} acetic acid Olopatadine ophthalmic solution, which inhibits the pro-inflammatory activity of conjunctival mast cells, is an effective therapy for allergic conjunctivitis. Olopatadine inhibits the capsaicin-induced sneezing response. Isocratic elution was performed using water-acetonitrile mixture along with tri ethyl amine as mobile phase. The overall run time was 10 min. and the UV detection was carried at 246 nm. 20 µL of sample was injected into the HPLC system. In the present work chromatographic separation was achieved by using a C-18 (250mm × 4.6mm i.d., 5 µm particle size) column of Shimadzu Model CBM-20A/20 Alite, equipped with SPD M20A prominence photodiode array detector, maintained at 25 °C. Linearity was observed in the concentration range of 0.1–200 µg/mL (R^2 = 0.999) and the method was validated as per ICH guidelines. The RSD for intra-day and inter-day precision were found to be less than 2 %. The percentage recovery was in good agreement with the labeled amount in the pharmaceutical formulations and the method is simple, precise, accurate and robust for the determination of Olopatadine.

Multifunctional polymeric nanoparticles - A novel strategy for enhancing tumor site availability of anti-cancer drugs

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The availability of drug at the site of tumor will decide the efficacy of anticancer drugs in chemotherapy. The use of nanoparticulate drug delivery system was well established to enhance the invivo efficacy of anticancer drugs over the past few decades. Currently, new and modified novel nanocarriers with various drugs and genes are being described in multiple peer reviewed publications. However, for future field of drug delivery, we have to think about the development of the next generation of pharmaceutical nanocarriers combining variety of properties, allowing simultaneous performance of multiple functions for the effective treatment of cancer. The novel carrier should combine some desired functions like, long circulation in the blood or staying long in the body; targeting the site of the disease and accumulate at local site via both (EPR) effect and ligand-mediated recognition; responding to local stimuli characteristic of the pathological site; providing an enhanced intracellular delivery of cancer drugs and giving real-time information about biodistribution and target accumulation. Multifunctional polymeric nanoparticles are being emerged as a novel tool to combine all those functions. Combining diagnosis and therapy in one process is also an emerging biomedical method referred as theragnostics. With the help of theragnostics, we can bring together key stages of a medical treatment, such as diagnosis and therapy, and make a treatment shorter, safer and more efficient. Biocompatible multifunctional nanoparticles are currently under development for practical applications as cancer theragnostic agents with high targetability that would enable non invasive diagnosis, effective treatment, less side-effects and improved cancer cure rates.