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Spatiotemporal Expression Analysis of gdf10a During Early Zebrafish Development

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Even though it is widely used, Diclofenac Sodium has a short half time it is rapidly and almost completely absorbed and 40% undergoes first-pass metabolism that lead to fluctuations in bio-availability. It also has common side effects that restrict its use such as gastric irritation gastritis, peptic ulcers and bleeding. This is the basis for designing an Extended Release (ER) dosage formulation that would maintain sustained therapeutic levels and minimize the frequency of drug administration and overcome its side effects. Meanwhile, the extended release Diclofenac Sodium tablet formulation is supplied as or contained in medications under a variety of trade names that may not be bio-equivalent. In-vivo testing is applied to measure the active ingredient in the blood supply using High-Performance Liquid Chromatography (HPLC) methods with ultraviolet because it is sensitive, simple, rapid and economic. Animal models such as beagle dogs are preferred because they feasible and less costly. Therefore, drugs like Diclofenac Sodium that have a shorter half life and high dose frequency require a controlled release formulation that offer better patient compliance, maintain uniform drug levels, reduce dose and side effects and increased margin of safety. In determining concentration of Diclofenac Sodium in blood plasma, a simple high performance liquid chromatography with Ultraviolet (UV) method is developed. Thus, UV spectroscopy is attached to specifically detect Diclofenac Sodium since organic compounds absorb UV light at respective wave length except the amount of light absorbed depends on the amount of a particular compound that is passing through the beam at the time. The method is validated by using linearity, stability, precision, accuracy and sensitivity parameters according to International Conference on Harmonization (ICH) guidelines. Chemicals to be used should be of analytical grade and appropriate HPLC system should be used. Preparation of plasma samples are processed by liquid to liquid extraction while ultraviolet detection is set at a specified appropriate wave length. Thus, HPLC is the most advanced technique for high specific and quantitative measurement of low levels of analytical blood samples. Therefore, HPLC is a versatile and reproducible chromatograph technique for estimation of Diclofenac Sodium in blood plasma, especially in quantitative and qualitative estimation of active molecule. In general, dogs as animal models have been frequently used for prediction of human bioavailability because they trust the human most. It is important to note that in pharmacology, bioavailability is the subcategory of absorption and is the amount of an administered dose of unchanged drug that reaches the circulatory system after first pass effects by either the gut wall or the liver. Out the dogs use for research purposes the breed that top most is the beagles.

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