

# Chiral Separation of Calcium Channel Antagonist by SFC and HPLC Using Different Immobilized Chiral Stationary Phases †

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**Abstract:** Nowadays, chiral separation is one of the best areas of analytical chemistry. Supercritical fluid chromatography and high-performance liquid chromatography techniques are being used to separate different types of racemates in pharmaceuticals industries. Since the last decade, various enantiomers have been separated using SFC and HPLC as well. SFC achieved the best analytical technique concerning HPLC in terms of low cost, wide polarity compatibility, higher column efficiency, and less run time, which are the primary aspect of pharmaceutical companies. A series of five immobilized chiral stationary phases, such as Chiralpak IA, Chiralpak IB, Chiralpak IC, Chiralpak IE, and Chiralpak IG, have been used for chiral separation of calcium channel antagonist. This article encompasses the practical aspects of SFC and HPLC for the enantio-separation of calcium channel antagonists such as verapamil, methoxyverapamil, and nisoldipine. SFC has been found better technique than HPLC for the chiral separation of the reported drugs. The chromatographic parameters such as retention ( $k$ ), separation ( $\alpha$ ), and resolution ( $R_s$ ) factors were calculated. This article will be useful for chemists, scientists, researchers, and academicians for chiral chromatography.

**Keywords:** HPLC; SFC; CSPs; chiral separation; comparison.

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## Conflicts of Interest

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