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# Study on sodium benzoate by chiral ligand exchange capillary electrophoresis based on its inhibitory activity in D-amino acid oxidase mediated oxidation of D-serine

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## Abstract

Although it has been reported that sodium benzoate (SB) as an inhibitor of D-amino acid oxidase (DAAO) can prevent degradation of D-amono acids (D-AAs) and might be helpful for treatment of schizophrenia and for the relief of depression symptoms, its role in clinical therapy is still unclear. Here, a novel approach for study SB was proposed by the kinetic study about its competitive inhibitory efficiency to DAAO activity with a chiral ligand exchange capillary electrophoresis (CE) method, in which the Zn(II)-Lprolinamide complex was chosen as a novel chiral selector. After optimization, the chiral ligand exchange CE method was employed to determine the labeled D,L-Ser with good linearity, efficient recovery and remarkable reproducibility. Using the unique assay, we further observed DAAO activity through the determination of D-Ser concentration variation after being incubated with DAAO and obtained the sigmoidal inhibitory curve of SB to DAAO activity. It has been found that the ascending part of this inhibitory curve could be used for the analysis of SB with the standout merits of high selectivity and adjustable detection range. Meanwhile, the pharmacokinetics of intraperitoneal SB in mice plasma was investigated, which would help us to understand the metabolic behaviour of this compound and offer guidance instruction to the clinic rational use. We believed that this work could pave a new way for the study of SB in the treatment of schizophrenia or depressive disorder and give insight into its effect in the change of neuromodulator.

## Biography:

Li Qi has completed her Ph.D in analytical chemistry at Hebei University, P. R. China.She joined Institute of Chemistry, Chinese Academy of Sciences in 2002. Her group research interesting is focused on chip electrophoresis, capillary electrophoresis, chiral separation, enzyme kinetics, preparation of polymer monolith and its application. She has published more than 90 papers in reputed journals and serving as an executive director of the chromatography association in Beijing.