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## **A NEW STRATEGY FOR FAST CHIRAL SCREENING BY HPLC COUPLED WITH MULTIVARIATE CURVE RESOLUTION- ALTERNATING LEAST SQUARES**

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A strategy aimed at developing rapid chiral screening technology was proposed in this paper with compressed screening time by mixing samples and screening the mixture of racemates. The data matrix of the mixture obtained by diode array detector or mass spectrometry was deconvoluted into resolved chromatograms and spectra by the multivariate curve resolution – alternating least squares algorithm. The individual racemate was then identified by the resolved spectra and its enantioselectivity was evaluated by the resolved chromatograms. Two example experiments were carried out to verify the feasibility of the strategy. A mixture consisting 5 racemates was successfully screened on Chiralcel OD column in 4 minutes and the average prediction error on the deconvoluted retention times is only 0.41%. Another mixture made by 10 racemates were analyzed on three CSPs (Lux Cellulose-1, Lux Cellulose-2 and Lux Amylose 2). 28 separation cases out of the total 30 pairs of enantiomeric peaks were correctly predicted by multi-column MCR-ALS and the average prediction error on retention time is about 3.3%. The corresponding screen times of the mixed racemates were reduced to 20% and 10% as that of the single racemates respectively. The high accuracy of deconvolution by MCR-ALS shows possibility of wide application of the proposed method in rapid chiral screening.