

Supplementary Material

Enantioseparation in high performance liquid chromatography: preparation and evaluation of a vancomycin-based chiral stationary phase via surface-initiated atom transfer radical polymerization

Siyu Guo¹, Chao Huang¹, Ning Zhang¹, Shujuan Ma², Chunmiao Bo¹, Bolin Gong^{1*}, Junjie Ou^{1,2,3*}

¹School of Chemistry and Chemical Engineering, Key Laboratory for Chemical Engineering and Technology, State Ethnic Affairs Commission, North Minzu University, Yinchuan 750021, China

²CAS Key Laboratory of Separation Science for Analytical Chemistry, Dalian Institute of Chemical Physics, Chinese Academy of Sciences, Dalian 116023, China

³University of Chinese Academy of Sciences, Beijing 100049, China

* To whom correspondence should be addressed:

Prof. Bolin Gong

Tel: +86-951-2067917

Fax: +86-951-2067917

E-mail: gongbolin@163.com

Prof. Junjie Ou

Tel: +86-411-84379576

Fax: +86-411-84379620

E-mail: junjieou@dicp.ac.cn

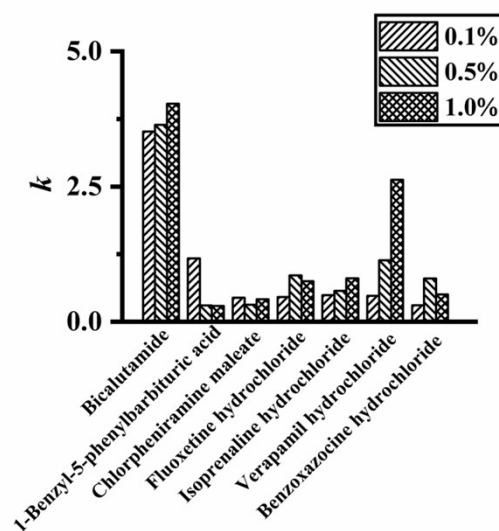


Fig. S1. Effect of TEA concentration in mobile phase on k of racemic drugs. Chromatographic conditions: mobile phase, TEAA solution (pH 3.5)/methanol (50/50, v/v); flow rate, 1 mL min⁻¹; injection volume, 5 μ L; detection temperature, 25 $^{\circ}$ C; detection wavelength, 224 nm.

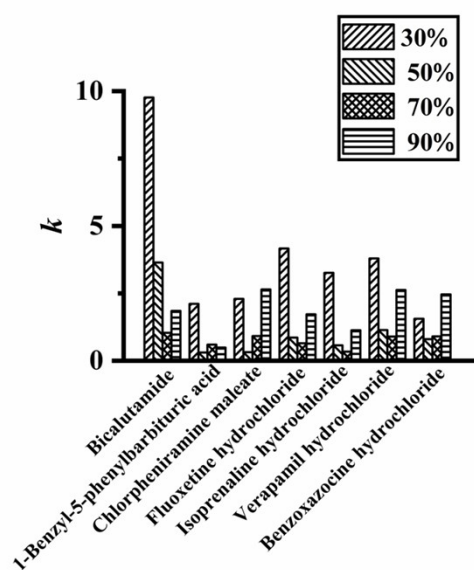


Fig. S2. Effect of methanol content in mobile phase on k of racemic drugs. Chromatographic conditions: mobile phase, 0.5% TEAA solution (pH 3.5)/methanol, flow rate, 1 mL min⁻¹; injection volume, 5 μ L; detection temperature, 25 $^{\circ}$ C; detection wavelength, 224 nm.

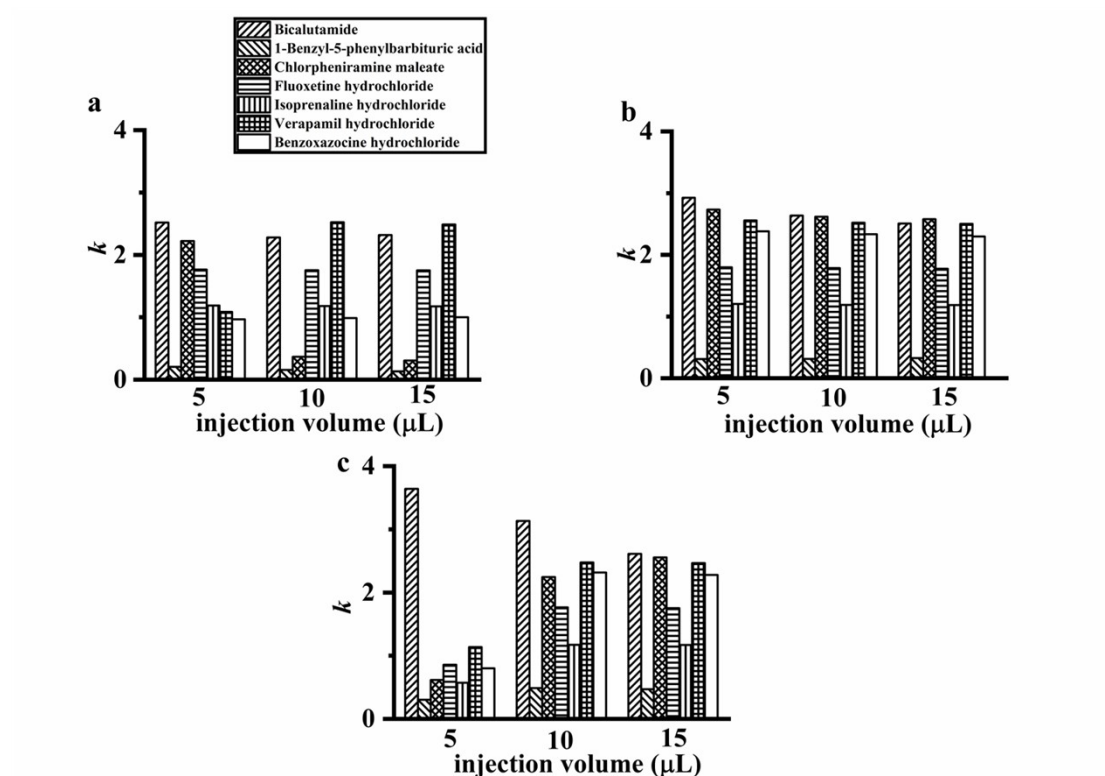


Fig. S3. Effect of injection volume on k of racemic drugs at the flow rate of (a) 0.6, (b) 0.8 and (c) 1 mL min⁻¹. Chromatographic conditions: mobile phase, 0.5% TEAA solution (pH 3.5)/methanol (50/50, v/v); detection temperature, 25 °C; detection wavelength, 224 nm.

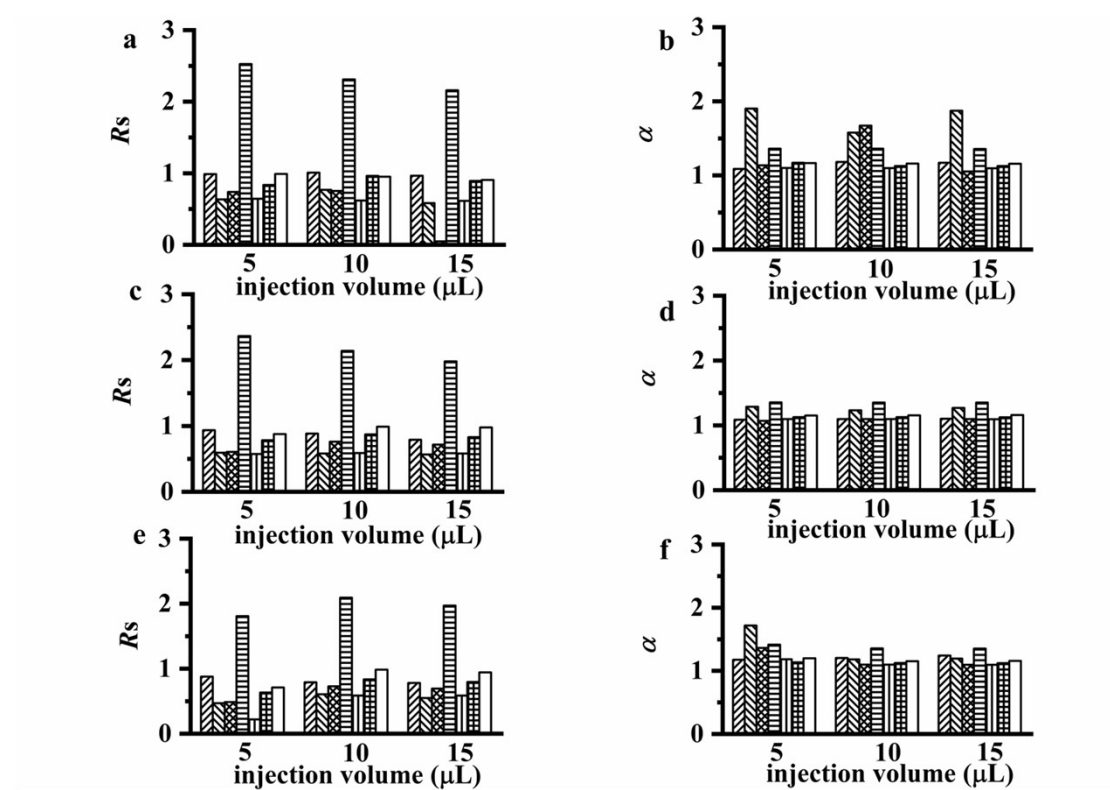


Fig. S4. Effect of injection volume on (a, c, e) R_s and (b, d, f) α of racemic drugs at the flow rate of (a, b) 0.6, (c, d) 0.8 and (e, f) 1.0 mL min^{-1} . Seven racemates as shown in Fig. S3.

Table S1 Values of ΔH^0 , ΔS^0 and ΔG^0 (25 °C) for benzoxazocine hydrochloride and chlorpheniramine maleate.

Analytes	ΔH^0 (kJ mol ⁻¹)	ΔS^0 (J mol ⁻¹ K ⁻¹)	ΔG^0 (kJ mol ⁻¹)	R
1-benzoxazocine hydrochloride	-2.682	-2.596	-2.682	0.9899
2-benzoxazocine hydrochloride	-2.587	-2.673	-2.586	0.9899
1-chlorpheniramine maleate	-2.702	-2.727	-2.702	0.9950
2-chlorpheniramine maleate	-2.362	-3.001	-2.361	0.9950

0.5% TEAA solution (pH 4.5)/methanol (50/50, v/v); flow rate, 1 mL min⁻¹; injection volume, 5 μ L; detection wavelength, 224 nm; column dimension, 150×4.6 mm I.D..