

Supplementary Materials

Enantiomeric Separation and Degradation of Benoxacor Enantiomers in Horticultural Soil by Normal-phase and Reversed-phase High Performance Liquid Chromatography

Haoxiang Zhu¹, Jinhui Cheng², Kunrong Qin¹, Ping Zhang^{2,*}
and Haiyang Wang^{1,*}

¹ College of Horticulture and Landscape Architecture, Southwest University, Chongqing 400715, China

² College of Plant Protection, Southwest University, Chongqing 400715, China

* Correspondence: pingz028@163.com (P.Z.) whyswau@126.com (H.W.); Tel.: +86-23-68250541; Fax.: +86-23-68251274

Table S1. Effects of temperature on benoxacor enantiomers separation with five chiral columns

Stationary phase	Mobile phase (v/v)	Tep	k1	k2	α	Rs	Mobile phase (v/v)	Tep	k1	k2	α	Rs
Lux Cellulose-1	HEX/IPA(75/25)	10	1.41	1.53	1.08	0.84	MEOH/H ₂ O(95/5)	10	0.40	0.46	1.17	0.59
		15	1.33	1.43	1.08	0.77		15	0.39	0.46	1.17	0.61
		20	1.24	1.33	1.07	0.67		20	0.37	0.43	1.16	0.55
		25	1.11	1.18	1.06	0.69		25	0.35	0.40	1.13	0.51
		30	1.03	1.09	1.06	0.56		30	0.34	0.38	1.12	0.52
		35	0.97	1.01	1.04	0.49		35	0.32	0.36	1.11	0.38
		40	0.91	0.95	1.04	0.38		40	0.31	0.34	1.10	0.34
	HEX/ETOH(95/5)	10	2.29	2.84	1.24	2.73	ACN/H ₂ O(80/20)	10	/	/	/	/
		15	2.21	2.72	1.23	2.87		15	/	/	/	/
		20	2.04	2.44	1.20	2.31		20	/	/	/	/
		25	1.90	2.24	1.18	2.22		25	/	/	/	/
		30	1.78	2.06	1.16	1.88		30	/	/	/	/
		35	1.71	1.95	1.14	1.51		35	/	/	/	/
		40	1.60	1.80	1.12	1.29		40	/	/	/	/
	HEX/ETOH(95/5)	10	1.70	1.83	1.08	0.90	ACN/H ₂ O	10	/	/	/	/
		15	1.60	1.71	1.07	0.83		15	/	/	/	/
		20	1.52	1.61	1.06	0.76		20	/	/	/	/
		25	1.44	1.52	1.06	0.76		25	/	/	/	/
		30	1.37	1.44	1.06	0.73		30	/	/	/	/
		35	1.30	1.37	1.05	0.69		35	/	/	/	/
		40	1.29	1.36	1.05	0.73		40	/	/	/	/
Lux Cellulose-3	HEX/IPA(80/20)	10	2.35	3.42	1.45	2.38	MEOH/H ₂ O(95/5)	10	1.06	2.16	2.04	4.27
		15	2.09	3.02	1.44	2.31		15	1.03	2.07	2.01	4.13
		20	1.84	2.64	1.44	2.93		20	0.94	1.88	1.99	3.79
		25	1.55	2.24	1.45	2.74		25	0.85	1.68	1.96	3.51
		30	1.45	2.06	1.42	2.71		30	0.79	1.53	1.93	3.48
		35	1.29	1.82	1.41	2.25		35	0.71	1.35	1.90	3.18
		40	1.15	1.61	1.40	2.28		40	0.67	1.24	1.87	2.93
	HEX/ETOH(85/15)	10	2.41	4.46	1.85	6.35	ACN/H ₂ O(80/20)	10	0.18	0.42	2.36	1.60
		15	2.14	3.84	1.80	6.37		15	0.18	0.41	2.35	1.56
		20	1.81	3.18	1.76	5.35		20	0.17	0.39	2.29	1.54
		25	1.61	2.72	1.69	6.16		25	0.16	0.37	2.25	1.46
		30	1.47	2.43	1.66	5.25		30	0.16	0.35	2.21	1.44
		35	1.31	2.09	1.60	5.10		35	0.15	0.33	2.13	1.32
		40	1.14	1.77	1.56	4.96		40	0.15	0.31	2.05	1.16
Chiralpak AD	HEX/IPA(95/5)	10	3.72	3.92	1.05	0.95	MEOH/H ₂ O	10	/	/	/	/
		15	3.52	3.75	1.07	0.99		15	/	/	/	/
		20	3.27	3.57	1.09	0.97		20	/	/	/	/
		25	3.05	3.29	1.08	1.14		25	/	/	/	/
		30	2.85	3.09	1.08	1.06		30	/	/	/	/
		35	2.68	2.91	1.09	0.99		35	/	/	/	/
		40	2.47	2.70	1.09	0.94		40	/	/	/	/

Chiralpak IC	HEX/ETOH(95/5)	10	2.92	3.63	1.24	0.84	ACN/H ₂ O	10	/	/	/	/
		15	2.89	3.55	1.23	0.80		15	/	/	/	/
		20	2.67	3.29	1.23	0.89		20	/	/	/	/
		25	2.41	2.99	1.24	1.79		25	/	/	/	/
		30	2.22	2.75	1.24	0.93		30	/	/	/	/
		35	2.08	2.58	1.24	1.28		35	/	/	/	/
		40	1.94	2.41	1.24	1.48		40	/	/	/	/
	HEX/IPA(90/10)	10	1.66	2.21	1.33	2.86	MeOH/H ₂ O(90/10)	10	1.50	1.71	1.14	0.94
		15	1.56	2.06	1.33	2.67		15	1.40	1.59	1.13	0.93
		20	1.47	1.93	1.31	2.61		20	1.33	1.49	1.12	0.92
		25	1.38	1.79	1.30	2.66		25	1.28	1.43	1.12	0.82
		30	1.32	1.71	1.30	2.63		30	1.19	1.32	1.11	0.81
		35	1.24	1.57	1.26	2.22		35	1.11	1.23	1.11	0.76
		40	1.18	1.47	1.25	1.85		40	1.02	1.12	1.10	0.69
	HEX/ETOH(95/5)	10	1.21	1.56	1.29	2.85	ACN/H ₂ O	10	/	/	/	/
		15	1.20	1.52	1.27	3.13		15	/	/	/	/
		20	1.14	1.43	1.25	2.17		20	/	/	/	/
		25	1.12	1.38	1.24	2.97		25	/	/	/	/
		30	1.09	1.33	1.22	2.35		30	/	/	/	/
		35	1.05	1.27	1.21	1.53		35	/	/	/	/
		40	1.02	1.22	1.19	1.87		40	/	/	/	/

Table S2. Physicochemical properties of the soils

Soil No.	site	Particle size				pH	C _{org} (%)
		sand	slit	clay	texture		
Soil 1	Guangxi	35.7	44.3	20.0	slit loam	5.41	2.2
Soil 2	Chongqing	23.7	17.4	58.9	clay loam	6.68	4.8
Soil 3	Gansu	69.1	14.6	16.3	sandy loam	7.94	1.9

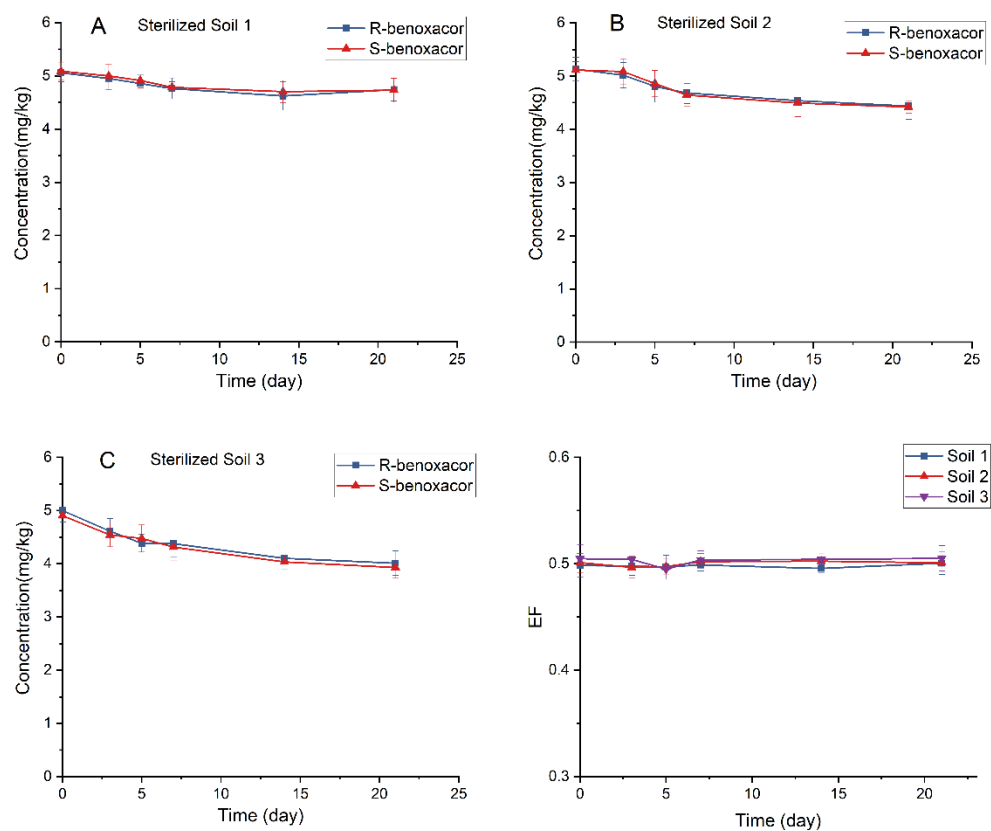


Figure S1. Degradation curves of benoxacor enantiomers in three sterilized soils. (A) Soil 1; (B) Soil 2; (C) Soil 3; (D) EF.