

TABLE 5.2
Effect of Initial Aqueous Phase Chemical Concentration on Powdered Human Callus/Water Partition Coefficient

Chemical ^a (log PC _{o/w})	Concentration (% w/v)	Partition (mean)	Coefficient ^b (SD)
Dopamine (-3.40)	0.23	5.42	0.22
	0.46	6.04	0.28
	0.92	5.74	0.28
Glycine (-3.20)	0.05	0.36	0.01
	0.10	0.40	0.02
Urea (-2.11)	0.03	0.26	0.02
	0.06	0.15	0.02
	0.12	0.17	0.02
Glyphosate (-1.70)	0.02	0.79	0.04
	0.04	0.68	0.04
	0.08	0.70	0.01
Theophylline (-0.76)	0.18	0.37	0.02
	0.36	0.43	0.03
	0.54	0.42	0.02
Aminopyrine (0.84)	0.07	0.44	0.09
	0.14	0.46	0.03
Hydrocortisone (1.61)	0.09	0.37	0.01
	0.18	0.34	0.01
	0.36	0.29	0.02
Malathion (2.36)	0.47	0.50	0.09
	0.94	0.40	0.03
	1.88	0.53	0.04
Atrazine (2.75)	0.09	0.53	0.06
	0.14	0.59	0.07
	0.19	0.58	0.03
2,4-D (2.81)	0.27	7.52	0.81
	0.54	7.53	1.01
	0.82	8.39	1.67
Alachlor (3.52)	0.32	1.11	0.05
	0.64	1.08	0.04
	1.28	1.96	0.15
PCB (6.40)	0.04	1237.61	145.52
	0.08	1325.44	167.03
	0.16	1442.72	181.40

^a PC PHSC/water represents the mean of each test ($n = 5$) \pm SD (16).

^b Log PC (o/w) was cited in Hansch C and Leo A (eds). 1979. (20).

Abbreviations: 2,4-D, 2,4-dichloro-phenoxyacetic acid; PC, partition coefficient; PCB, polychlorinated biphenyls; PHSC, powdered human stratum corneum.

5.4 PHSC AND PERCUTANEOUS ABSORPTION

To evaluate sensitivity of this in the in vitro PHSC model, we examined chemical partitioning into the PHSC as well as that in vitro percutaneous absorption in human skin, and in vivo percutaneous absorption in the rhesus monkey. Table 5.3 shows that the in vivo percutaneous absorption of nitroaniline from surface water following 30-minute exposure was 4.1% and 2.3% of the applied dose. This is comparable with the 5.2% and 1.6% for in vitro absorption with human cadaver skin