

Table 1. Characteristics of sediments used to evaluate the adsorptivity of rotenone.

| Characteristic | Source of sediment | | | | |
|---|-----------------------------|-----------------------------|-----------------------|----------------|------------|
| | Mississippi River RM 707 | Mississippi River Rm 704 | Arkansas ^a | Chocolay River | Ford River |
| Soil type | sand | silt loam | loam | loamy sand | sand |
| % sand | 98 | 6 | 44 | 84 | 88 |
| % silt | 0 | 82 | 46 | 14 | 8 |
| % clay | 2 | 12 | 10 | 2 | 4 |
| % organic | 0.4 | 4.5 | 2.5 | 7.0 | 3.5 |
| Calcium ($\mu\text{g/g}$) | 200 | 2,900 | 1,100 | 1,050 | 750 |
| Magnesium ($\mu\text{g/g}$) | 100 | 400 | 300 | 150 | 250 |
| Potassium ($\mu\text{g/g}$) | 25 | 95 | 100 | 30 | 30 |
| Phosphorous ($\mu\text{g/g}$) | 18 | 26 | 6.0 | 48 | 13 |
| Cation exchange capacity (meq/100 g) | 1.42 | 13.5 | 6.17 | 4.92 | 4.42 |
| pH | 6.6 | 7.0 | 7.0 | 5.8 | 6.5 |

^aRice Branch Experiment Station, University of Arkansas.

Table 2. Buffers (0.1 M) used to adjust and maintain pH's during adsorption/desorption incubations.

| pH | Volume of buffers diluted to 1 L | | | |
|----|----------------------------------|------------------|--|---|
| | | | | |
| 6 | 438.5 mL | 0.2 M | NaH ₂ PO ₄ | + |
| | 61.5 mL | 0.2 M | Na₂HPO₄ | |
| 7 | 195.0 mL | 0.2 M | NaH ₂ PO ₄ | + |
| | 305.0 mL | 0.2 M | Na ₂ HPO ₄ | |
| 8 | 26.5 mL | 0.2 M | NaH ₂ PO ₄ | + |
| | 473.5 mL | 0.2 M | Na ₂ HPO ₄ | |
| 9 | 20.0 mL | 0.2 M | Na ₂ CO ₃ | + |
| | 230.0 mL | 0.2 M | NaHCO ₃ | |

Table 3. Adsorption of rotenone from solution by bottom sediments collected from the upper Mississippi River, main channel (River mile 707) at selected temperatures and pH's.

| Temp. (°C) and conc. added (mg/L) | Amount adsorbed (µg/g) at pH | | | |
|---|------------------------------|------|------|------|
| | 6 | 7 | 8 | 9 |
| 5°C | | | | |
| 0.1 | 0.18 | 0.24 | 0.29 | 0.31 |
| 0.2 | 0.44 | 0.68 | 0.60 | 0.50 |
| 0.4 | 0.97 | 1.46 | 1.05 | 0.96 |
| 0.6 | 1.89 | 2.53 | 1.60 | 1.37 |
| 1.0 | 2.20 | 4.08 | 2.33 | 2.52 |
| 20°C | | | | |
| 0.1 | 0.26 | 0.22 | 0.21 | 0.32 |
| 0.2 | 0.54 | 0.57 | 0.45 | 0.61 |
| 0.4 | 1.09 | 1.30 | 0.65 | 1.22 |
| 0.6 | 2.01 | 1.65 | 1.18 | 1.71 |
| 1.0 | 3.37 | 3.62 | 2.25 | 2.95 |

Table 4. Adsorption of rotenone from solution by bottom sediments collected from the upper Mississippi River, backwater (River mile 704) at selected temperatures and pH's.

| Temp. (°C) and conc. added (mg/L) | Amount adsorbed ($\mu\text{g/g}$) at pH | | | |
|---|---|------|------|------|
| | 6 | 7 | 8 | 9 |
| 5°C | | | | |
| 0.1 | 0.97 | 0.95 | 0.94 | 0.94 |
| 0.2 | 1.94 | 1.89 | 1.86 | 1.87 |
| 0.4 | 3.87 | 3.76 | 3.68 | 3.73 |
| 0.6 | 5.77 | 5.58 | 5.50 | 5.55 |
| 1.0 | 9.57 | 9.21 | 9.07 | 9.17 |
| 20°C | | | | |
| 0.1 | 0.95 | 0.82 | 0.94 | 0.94 |
| 0.2 | 1.89 | 1.75 | 1.85 | 1.87 |
| 0.4 | 3.77 | 3.53 | 3.71 | 3.71 |
| 0.6 | 5.66 | 5.49 | 5.51 | 5.58 |
| 1.0 | 9.32 | 9.15 | 9.14 | 9.30 |

Table 5. Adsorption of rotenone from solution by bottom sediments collected from the Rice Branch Experimental Station, Arkansas, at selected temperatures and pH's.

| Temp. (°C) and conc. added (mg/L) | Amount adsorbed (µg/g) at pH | | | |
|---|------------------------------|------|------|------|
| | 6 | 7 | 8 | 9 |
| 5°C | | | | |
| 0.1 | 0.75 | 0.87 | 0.82 | 0.90 |
| 0.2 | 1.50 | 1.67 | 1.60 | 1.76 |
| 0.4 | 2.88 | 3.24 | 3.11 | 3.57 |
| 0.6 | 4.30 | 4.65 | 4.58 | 5.23 |
| 1.0 | 7.43 | 7.64 | 7.21 | 8.48 |
| 20°C | | | | |
| 0.1 | 0.82 | 0.79 | 0.87 | 0.85 |
| 0.2 | 1.63 | 1.60 | 1.72 | 1.64 |
| 0.4 | 3.10 | 3.27 | 3.37 | 3.26 |
| 0.6 | 4.58 | -- | 4.97 | 4.94 |
| 1.0 | 7.69 | 8.09 | 8.13 | 7.80 |

Table 6. Adsorption of rotenone from solution by bottom sediments collected from the Chocolay River, Michigan, at selected temperatures and pH's.

| Temp. (°C) and conc. added (mg/L) | Amount adsorbed (µg/g) at pH | | | |
|---|------------------------------|------|------|------|
| | 6 | 7 | 8 | 9 |
| 5°C | | | | |
| 0.1 | 0.94 | 0.90 | 0.95 | 0.92 |
| 0.2 | 1.84 | 1.82 | 1.92 | 1.80 |
| 0.4 | 3.72 | 3.70 | 3.83 | 3.60 |
| 0.6 | 5.56 | 5.56 | 5.72 | 5.36 |
| 1.0 | 9.23 | 9.09 | 9.52 | 8.98 |
| 20°C | | | | |
| 0.1 | 0.96 | 0.91 | 0.92 | 0.82 |
| 0.2 | 1.90 | 0.91 | 1.82 | 1.67 |
| 0.4 | 3.83 | 3.56 | 3.62 | 3.19 |
| 0.6 | 5.71 | 5.38 | 5.48 | 4.83 |
| 1.0 | 9.50 | 8.70 | 8.92 | 7.84 |

Table 7. Adsorption of rotenone from solution by bottom sediments collected from the Ford River, Michigan, at selected temperatures and pH's.

| Temp. (°C) and conc. added (mg/L) | Amount adsorbed (µg/g) at pH | | | |
|---|------------------------------|------|------|------|
| | 6 | 7 | 8 | 9 |
| 5°C | | | | |
| 0.1 | 0.90 | 0.83 | 0.87 | 0.85 |
| 0.2 | 1.74 | 1.67 | 1.75 | 1.63 |
| 0.4 | 3.57 | 3.30 | 3.47 | 3.29 |
| 0.6 | 5.30 | 5.15 | 5.21 | 4.81 |
| 1.0 | 8.66 | 8.33 | 8.65 | 8.01 |
| 20°C | | | | |
| 0.1 | 0.93 | 0.84 | 0.81 | 0.71 |
| 0.2 | 1.85 | 1.69 | 1.63 | 1.43 |
| 0.4 | 3.63 | 3.22 | 3.17 | 2.90 |
| 0.6 | 5.58 | 4.93 | 4.56 | 3.86 |
| 1.0 | 9.13 | 8.10 | 7.76 | 7.15 |

Table 8. Sorption coefficients (K_d) for rotenone on bottom sediments collected from the Mississippi River main channel (River mile 707) at selected temperatures and pH's.

| Temp. (°C) and conc. added (mg/L) | pH | | | |
|---|------|------|------|----------------------|
| | 6 | 7 | 8 | 9 |
| 5°C | | | | |
| 0.1 | 2.24 | 3.19 | 4.08 | 4.39 |
| 0.2 | 2.84 | 5.14 | 4.30 | 3.31 ^{3.89} |
| 0.4 | 3.18 | 5.75 | 3.57 | 3.16 |
| 0.6 | 4.58 | 7.27 | 3.63 | 2.97 |
| 1.0 | 3.10 | 6.89 | 3.04 | 3.36 |
| 20°C | | | | |
| 0.1 | 3.53 | 2.89 | 2.66 | 4.68 |
| 0.2 | 3.69 | 3.97 | 2.90 | 4.40 ^{3.74} |
| 0.4 | 3.73 | 4.82 | 1.94 | 4.37 |
| 0.6 | 5.05 | 3.79 | 2.45 | 3.99 |
| 1.0 | 5.08 | 5.67 | 2.90 | 4.18 |

Table 9. Sorption coefficients (K_d) for rotenone on bottom sediments collected from the Mississippi River backwater (River mile 704) at selected temperatures and pH's.

| Temp. (°C) and conc. added (mg/L) | pH | | | |
|---|-----|------|------|-----|
| | 6 | 7 | 8 | 9 |
| 5°C | | | | |
| 0.1 | 312 | 198 | 149 | 154 |
| 0.2 | 302 | 164 | 130 | 144 |
| 0.4 | 288 | 155 | 113 | 138 |
| 0.6 | 255 | 133 | 111 | 124 |
| 1.0 | 223 | 116 | 97.2 | 110 |
| 20°C | | | | |
| 0.1 | 182 | 46.8 | 144 | 149 |
| 0.2 | 175 | 68.4 | 124 | 142 |
| 0.4 | 160 | 75.3 | 130 | 127 |
| 0.6 | 166 | 108 | 112 | 134 |
| 1.0 | 136 | 108 | 106 | 134 |

Table 10. Sorption coefficients (K_d) for rotenone on bottom sediments collected from the Rice Branch Experiment Station, Arkansas, at selected temperatures and pH's.

| Temp. (°C) and conc. added (mg/L) | pH | | | |
|---|------|------|------|------|
| | 6 | 7 | 8 | 9 |
| 5°C | | | | |
| 0.1 | 29.8 | 64.6 | 46.8 | 91.0 |
| 0.2 | 30.2 | 51.0 | 39.4 | 73.3 |
| 0.4 | 25.8 | 42.8 | 34.7 | 83.7 |
| 0.6 | 25.4 | 34.3 | 32.2 | 68.2 |
| 1.0 | 28.9 | 32.4 | 25.8 | 55.7 |
| 20°C | | | | |
| 0.1 | 45.6 | 37.4 | 65.8 | 54.5 |
| 0.2 | 44.5 | 39.4 | 61.9 | 45.7 |
| 0.4 | 34.6 | 44.4 | 53.1 | 44.0 |
| 0.6 | 32.3 | -- | 48.3 | 46.4 |
| 1.0 | 33.4 | 42.4 | 43.4 | 35.4 |

Table 11. Sorption coefficients (K_d) for rotenone on bottom sediments collected from the Chocolay River, Michigan, at selected temperatures and pH's.

| Temp. (°C) and conc. added (mg/L) | pH | | | |
|---|-----|------|------|------|
| | 6 | 7 | 8 | 9 |
| 5°C | | | | |
| 0.1 | 144 | 90.8 | 207 | 109 |
| 0.2 | 116 | 104 | 225 | 89.0 |
| 0.4 | 134 | 124 | 221 | 90.5 |
| 0.6 | 125 | 127 | 204 | 83.3 |
| 1.0 | 120 | 100 | 197 | 88.2 |
| 20°C | | | | |
| 0.1 | 222 | 114 | 109 | 46.8 |
| 0.2 | 194 | 104 | 102 | 50.6 |
| 0.4 | 220 | 81.5 | 96.4 | 39.4 |
| 0.6 | 198 | 86.9 | 104 | 41.2 |
| 1.0 | 188 | 67.2 | 82.4 | 36.3 |

Table 12. Sorption coefficients (K_d) for rotenone on bottom sediments collected from the Ford River, Michigan, at selected temperatures and pH's.

| Temp. (°C) and conc. added (mg/L) | pH | | | |
|---|------|------|------|------|
| | 6 | 7 | 8 | 9 |
| 5°C | | | | |
| 0.1 | 90.0 | 49.0 | 68.7 | 56.2 |
| 0.2 | 65.5 | 51.2 | 68.7 | 43.8 |
| 0.4 | 83.2 | 47.3 | 65.5 | 46.3 |
| 0.6 | 76.1 | 60.8 | 65.8 | 40.2 |
| 1.0 | 64.5 | 49.7 | 63.8 | 40.2 |
| 20°C | | | | |
| 0.1 | 123 | 52.9 | 42.9 | 24.4 |
| 0.2 | 126 | 53.5 | 44.5 | 25.2 |
| 0.4 | 99.0 | 41.2 | 38.2 | 26.4 |
| 0.6 | 133 | 46.2 | 31.6 | 18.1 |
| 1.0 | 105 | 42.7 | 34.7 | 25.1 |

Table 13. Average (\pm SE) sorption coefficients (K_d) for rotenone on bottom sediments at selected temperatures and pH's (N=5).

| Temp. ($^{\circ}$ C) and sediment source | pH | | | |
|---|---------------------|---------------------|---------------------|---------------------|
| | 6 | 7 | 8 | 9 |
| 5 $^{\circ}$ C | | | | |
| Mississippi River (RM 707) | 3.19 ± 0.385 | 5.65 ± 0.724 | 3.72 ± 0.219 | 3.44 ± 0.247 |
| Mississippi River (RM 704) | 276 ± 16.4 | 153 ± 14.0 | 120 ± 8.92 | 134 ± 7.72 |
| Arkansas | 28.0 ± 1.01 | 45.0 ± 5.91 | 35.8 ± 3.52 | 74.4 ± 6.13 |
| Chocolay River | 128 ± 5.04 | 109 ± 7.02 | 211 ± 5.28 | 92.0 ± 4.42 |
| Ford River | 75.9 ± 4.95 | 51.6 ± 2.384 | 66.5 ± 0.961 | 45.3 ± 2.95 |
| 20 $^{\circ}$ C | | | | |
| Mississippi River (RM 707) | 4.22 ± 0.348 | 4.23 ± 0.473 | 2.57 ± 0.178 | 4.32 ± 0.115 |
| Mississippi River (RM 704) | 164 ± 7.90 | 81.3 ± 11.9 | 123 ± 6.71 | 137 ± 3.79 |
| Arkansas | 38.1 ± 2.87 | 40.9 ± 1.55 | 54.5 ± 4.16 | 45.2 ± 3.05 |
| Chocolay River | 204 ± 6.97 | 90.7 ± 8.28 | 98.8 ± 4.56 | 42.9 ± 2.58 |
| Ford River | 117 ± 6.48 | 47.3 ± 2.54 | 38.4 ± 2.42 | 23.8 ± 1.47 |

Table 14. Sorption constants (K_{OC}) for rotenone on bottom sediments at selected temperatures and pH's.

| Temp. (°C) and sediment source | pH | | | |
|--------------------------------------|-------|-------|-------|-------|
| | 6 | 7 | 8 | 9 |
| 5°C | | | | |
| Mississippi River (RM 707) | 797 | 1,410 | 931 | 860 |
| Mississippi River (RM 704) | 6,140 | 3,410 | 2,660 | 2,980 |
| Arkansas | 1,120 | 1,800 | 1,430 | 2,980 |
| Chocolay River | 1,830 | 1,560 | 3,010 | 1,310 |
| Ford River | 2,170 | 1,470 | 1,900 | 1,300 |
| 20°C | | | | |
| Mississippi River (RM 707) | 1,050 | 1,060 | 643 | 1,080 |
| Mississippi River (RM 704) | 3,640 | 1,810 | 2,740 | 3,040 |
| Arkansas | 1,520 | 1,640 | 2,180 | 1,810 |
| Chocolay River | 2,920 | 1,290 | 1,410 | 612 |
| Ford River | 3,350 | 1,350 | 1,100 | 681 |

Table 15. Average (\pm SE) sorption coefficients (K_d) for rotenone on bottom sediments at two temperatures.

| Sediment source | Temperature ($^{\circ}$ C) | |
|----------------------------|-----------------------------|---------------------|
| | 5 | 20 |
| Mississippi River (RM 707) | 4.00 ± 0.560 | 3.84 ± 0.422 |
| Mississippi River (RM 704) | 171 ± 35.7 | 126 ± 17.2 |
| Arkansas | 45.8 ± 10.1 | 44.7 ± 3.59 |
| Chocolay River | 135 ± 26.4 | 109 ± 34.0 |
| Ford River | 59.8 ± 6.96 | 56.6 ± 20.7 |

Table 16. Average (\pm SE) sorption constant (K_{OC}) for rotenone on bottom sediments at two temperatures.

| Sediment source | Temperature ($^{\circ}$ C) | | Average |
|----------------------------|-----------------------------|--------------------|---------------------|
| | 5 | 20 | |
| Mississippi River (RM 707) | 1,000 ± 139 | 958 ± 105 | 979 ± 21.0 |
| Mississippi River (RM 704) | 3,800 ± 796 | 2,810 ± 382 | 3,310 ± 495 |
| Arkansas | 1,830 ± 407 | 1,790 ± 144 | 1,810 ± 20.0 |
| Chocolay River | 1,930 ± 376 | 1,560 ± 487 | 1,740 ± 185 |
| Ford River | 1,710 ± 199 | 1,620 ± 593 | 1,660 ± 45.0 |
| Grand average | | | 1,900 ± 382 |

$$\frac{K_d}{f_{oc}} = K_{oc}$$

$$\frac{x}{4.5 \times 10^{-3}} = K_{oc}$$

$$\frac{x}{4.5 \times 10^{-3}} = 3,310$$

mg/L

$$x = 3,310 * 0.0045$$

$$K_d = 14835$$

log K_d

$$2.173 = \frac{1}{n}$$

Table 17. Desorption of adsorbed rotenone from bottom sediments collected from the upper Mississippi River, main channel (River mile 707) at selected temperatures and pH's.

| Temp. (°C) and conc. added (mg/L) | Amount desorbed (µg/g) at pH | | | |
|---|------------------------------|------|------|------|
| | 6 | 7 | 8 | 9 |
| 5°C | | | | |
| 0.1 | 0.13 | 0.24 | 0.15 | 0.15 |
| 0.2 | 0.31 | 0.52 | 0.32 | 0.34 |
| 0.4 | 0.65 | 1.10 | 0.57 | 0.53 |
| 0.6 | 1.11 | 1.53 | 0.81 | 1.04 |
| 1.0 | 1.60 | 2.37 | 1.44 | 1.34 |
| 20°C | | | | |
| 0.1 | 0.21 | 0.21 | 0.18 | 0.11 |
| 0.2 | 0.35 | 0.38 | 0.32 | 0.20 |
| 0.4 | 0.93 | 0.77 | 0.41 | 0.42 |
| 0.6 | 1.88 | 0.76 | 1.08 | 0.47 |
| 1.0 | 2.54 | 1.75 | 1.63 | 0.93 |

$$K_{oc} = 3,310 = K_f / 4.5$$

$$33.10 = K_f / 4.5$$

$$33.10 = K_f / 0.045$$

$$3,310 = \log K_f + 1/n \cdot \log C_{aq}$$

Table 18. Desorption of adsorbed rotenone from bottom sediments collected from the Upper Mississippi River backwater (River mile 704) at selected temperatures and pH's.

| Temp. (°C) and conc. added (mg/L) | Amount desorbed (µg/g) at pH | | | |
|---|------------------------------|-------|-------|-------|
| | 6 | 7 | 8 | 9 |
| 5°C | | | | |
| 0.1 | 0.015 | 0.023 | 0.015 | 0.026 |
| 0.2 | 0.030 | 0.069 | 0.033 | 0.053 |
| 0.4 | 0.057 | 0.13 | 0.08 | -- |
| 0.6 | 0.088 | 0.21 | 0.12 | 0.18 |
| 1.0 | 0.16 | 0.35 | 0.19 | 0.27 |
| 20°C | | | | |
| 0.1 | 0.028 | 0.11 | 0.041 | 0.035 |
| 0.2 | 0.066 | 0.15 | 0.081 | 0.082 |
| 0.4 | 0.15 | 0.25 | 0.17 | 0.15 |
| 0.6 | 0.30 | 0.32 | 0.26 | 0.22 |
| 1.0 | 0.30 | 0.50 | 0.50 | 0.41 |

Table 19. Desorption of adsorbed rotenone from bottom sediments collected from the Rice Branch Experimental Station, Arkansas, at selected temperatures and pH's.

| Temp. (°C) and conc. added (mg/L) | Amount desorbed (µg/g) at pH | | | |
|---|------------------------------|-------|-------|-------|
| | 6 | 7 | 8 | 9 |
| 5°C | | | | |
| 0.1 | 0.021 | 0.066 | 0.079 | 0.073 |
| 0.2 | 0.060 | 0.15 | 0.14 | 0.19 |
| 0.4 | 0.097 | 0.33 | 0.35 | 0.40 |
| 0.6 | 0.15 | 0.48 | 0.45 | 0.57 |
| 1.0 | 0.29 | 0.88 | 0.84 | 0.99 |
| 20°C | | | | |
| 0.1 | 0.077 | 0.15 | 0.067 | 0.065 |
| 0.2 | 0.19 | 0.23 | 0.17 | 0.15 |
| 0.4 | 0.41 | 0.42 | 0.35 | 0.34 |
| 0.6 | 0.50 | -- | 0.53 | 0.50 |
| 1.0 | 1.08 | 1.05 | 0.89 | 0.78 |

Table 20. Desorption of adsorbed rotenone from bottom sediments collected from the Chocolay River, Michigan, at selected temperatures and pH's.

| Temp. (°C) and conc. added (mg/L) | Amount desorbed (µg/g) at pH | | | |
|---|------------------------------|-------|-------|-------|
| | 6 | 7 | 8 | 9 |
| 5°C | | | | |
| 0.1 | 0.022 | 0.041 | 0.014 | 0.033 |
| 0.2 | 0.054 | 0.060 | 0.023 | 0.063 |
| 0.4 | 0.11 | 0.11 | 0.045 | 0.14 |
| 0.6 | 0.14 | 0.16 | 0.082 | 0.16 |
| 1.0 | 0.28 | 0.35 | 0.16 | 0.32 |
| 20°C | | | | |
| 0.1 | 0.024 | 0.038 | 0.036 | 0.060 |
| 0.2 | 0.054 | 0.054 | 0.082 | 0.13 |
| 0.4 | 0.081 | 0.18 | 0.17 | 0.35 |
| 0.6 | 0.13 | 0.28 | 0.23 | 0.46 |
| 1.0 | 0.19 | 0.50 | 0.50 | 0.92 |

Table 21. Desorption of adsorbed rotenone from bottom sediments collected from the Ford River, Michigan, at selected temperatures and pH's.

| Temp. (°C) and conc. added (mg/L) | Amount desorbed (µg/g) at pH | | | |
|---|------------------------------|-------|-------|-------|
| | 6 | 7 | 8 | 9 |
| 5°C | | | | |
| 0.1 | 0.041 | 0.068 | 0.047 | 0.048 |
| 0.2 | 0.11 | 0.12 | 0.11 | 0.12 |
| 0.4 | 0.17 | 0.25 | 0.24 | 0.26 |
| 0.6 | 0.28 | 0.32 | 0.39 | 0.35 |
| 1.0 | 0.50 | 0.73 | 0.60 | 0.67 |
| 20°C | | | | |
| 0.1 | 0.043 | 0.084 | 0.10 | 0.12 |
| 0.2 | 0.089 | 0.12 | 0.16 | 0.23 |
| 0.4 | 0.19 | 0.31 | 0.37 | 0.45 |
| 0.6 | 0.24 | 0.48 | 0.52 | 0.64 |
| 1.0 | -- | 0.87 | 1.03 | 1.06 |

Table 22. Average percent desorption of adsorbed ^{14}C -rotenone from sediments.

| Sediment source | Temperature ($^{\circ}\text{C}$) | | |
|----------------------------|------------------------------------|------|---------|
| | 5 | 20 | Average |
| Mississippi River (RM 707) | 64.3 | 62.9 | 63.6 |
| Mississippi River (RM 704) | 2.45 | 5.03 | 3.74 |
| Arkansas | 8.52 | 11.3 | 9.91 |
| Chocolay River | 2.77 | 5.39 | 4.08 |
| Ford River | 6.66 | 10.8 | 8.73 |

Table 23. Comparative adsorption and desorption of sterilized and unsterilized sediments at pH 7.

| Sediment source | Adsorption ($\mu\text{g/g}$) | | Desorption (%) | |
|----------------------------|--------------------------------|---------|----------------|---------|
| | Unsterile | Sterile | Unsterile | Sterile |
| Mississippi River (RM 707) | 0 | 0 | -- | -- |
| Mississippi River (RM 704) | 9.21 | 9.16 | 2.7 | 2.9 |
| Arkansas | 7.73 | 7.66 | 10.4 | 9.5 |
| Chocolay River | 8.69 | 8.75 | 2.7 | 3.2 |
| Ford River | 8.37 | 8.43 | 21.9 | 4.4 |

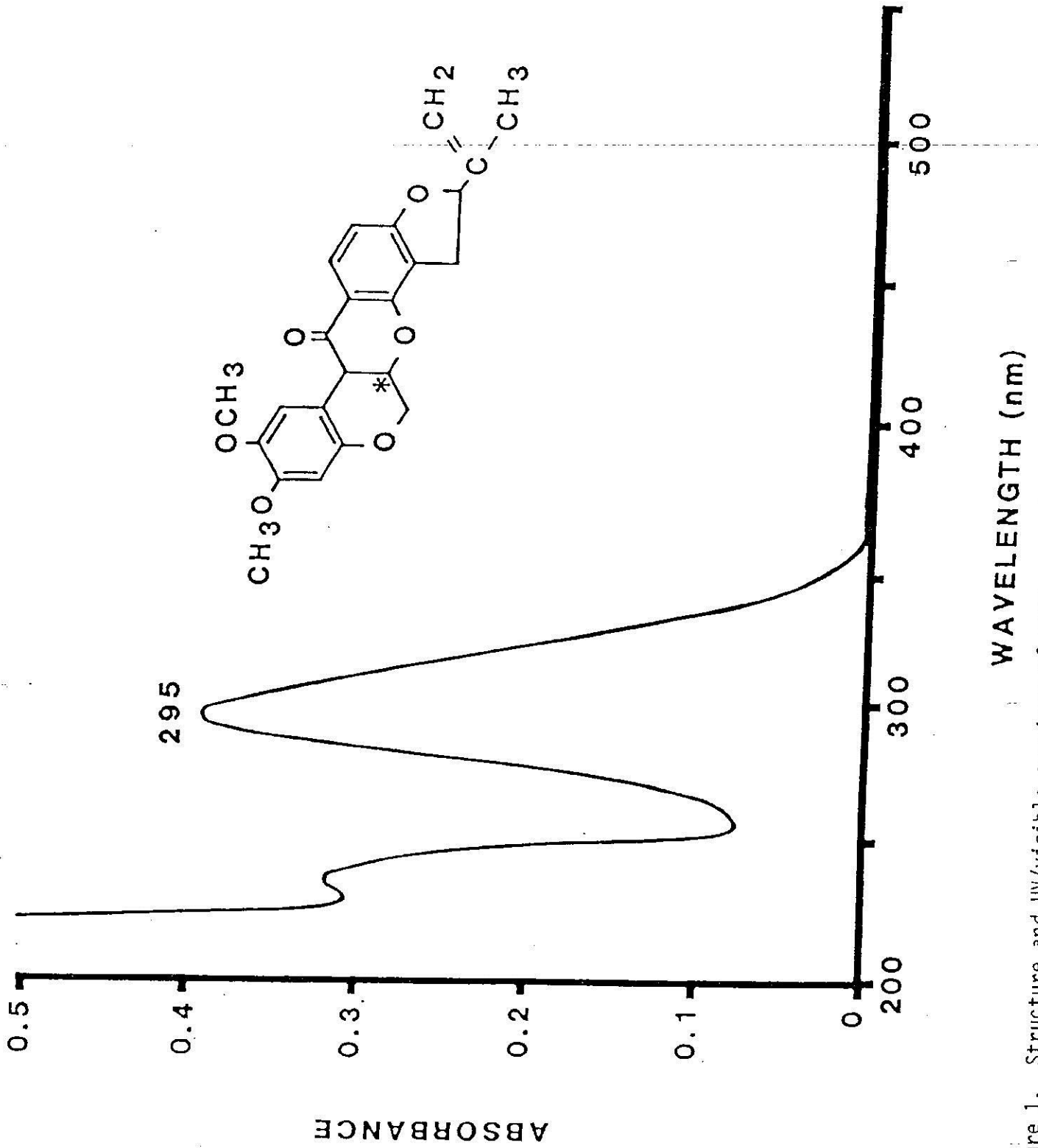


Figure 1. Structure and UV/visible spectrum of rotenone. *Actonifol denatata* L.