**Pollution, Ecological, and Health Risk Assessments of Heavy Metal Remediated Soil by Compost Fortified with Natural Coagulants**

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**Supplementary Material**

Table S1: Hazard quotient data of heavy metals exposed to through ingestion by adults

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  | Mean | Std. Deviation | Minimum | Maximum |
| Cu | Polluted Soil | 0.037 | 2.58E-02 | 5.05E-03 | 2.22E-02 | 3.16E-02 |
|  | Polluted Soil + Moringa Compost | 0.037 | 1.44E-02 | 2.91E-03 | 1.15E-02 | 2.25E-02 |
|  | Polluted Soil + Moringa Compost + Plant | 0.037 | 1.05E-02 | 1.11E-03 | 8.29E-03 | 1.27E-02 |
|  | Polluted Soil + Neem Compost | 0.037 | 1.87E-02 | 3.04E-03 | 1.42E-02 | 2.17E-02 |
|  | Polluted Soil + Neem Compost + Plant | 0.037 | 1.25E-02 | 1.88E-03 | 9.07E-03 | 1.58E-02 |
|  | Polluted Soil + Pawpaw Compost | 0.037 | 1.55E-02 | 1.83E-03 | 1.29E-02 | 1.79E-02 |
|  | Polluted Soil + Pawpaw Compost + Plant | 0.037 | 1.15E-02 | 1.76E-03 | 8.88E-03 | 1.49E-02 |
| Zn | Polluted Soil | 0.3 | 1.80E-02 | 3.72E-03 | 1.38E-02 | 2.11E-02 |
|  | Polluted Soil + Moringa Compost | 0.3 | 4.91E-03 | 3.47E-04 | 4.28E-03 | 5.42E-03 |
|  | Polluted Soil + Moringa Compost + Plant | 0.3 | 3.85E-03 | 3.07E-04 | 3.41E-03 | 4.48E-03 |
|  | Polluted Soil + Neem Compost | 0.3 | 4.60E-03 | 5.64E-04 | 3.82E-03 | 5.48E-03 |
|  | Polluted Soil + Neem Compost + Plant | 0.3 | 3.25E-03 | 4.28E-04 | 2.86E-03 | 4.23E-03 |
|  | Polluted Soil + Pawpaw Compost | 0.3 | 5.15E-03 | 3.72E-04 | 4.39E-03 | 5.68E-03 |
|  | Polluted Soil + Pawpaw Compost + Plant | 0.3 | 3.83E-03 | 5.48E-04 | 2.99E-03 | 4.44E-03 |
| Ni | Polluted Soil | 0.02 | 3.40E-03 | 3.73E-04 | 3.10E-03 | 3.82E-03 |
|  | Polluted Soil + Moringa Compost | 0.02 | 2.56E-03 | 3.10E-04 | 2.13E-03 | 3.33E-03 |
|  | Polluted Soil + Moringa Compost + Plant | 0.02 | 2.09E-03 | 2.44E-04 | 1.79E-03 | 2.73E-03 |
|  | Polluted Soil + Neem Compost | 0.02 | 2.16E-03 | 2.92E-04 | 1.79E-03 | 2.74E-03 |
|  | Polluted Soil + Neem Compost + Plant | 0.02 | 1.83E-03 | 3.12E-04 | 1.26E-03 | 2.42E-03 |
|  | Polluted Soil + Pawpaw Compost | 0.02 | 1.74E-03 | 3.14E-04 | 1.35E-03 | 2.29E-03 |
|  | Polluted Soil + Pawpaw Compost + Plant | 0.02 | 1.33E-03 | 1.48E-04 | 1.14E-03 | 1.53E-03 |
| Mn | Polluted Soil | 0.14 | 2.82E-02 | 1.08E-03 | 2.73E-02 | 2.94E-02 |
|  | Polluted Soil + Moringa Compost | 0.14 | 8.05E-03 | 7.58E-04 | 7.02E-03 | 1.00E-02 |
|  | Polluted Soil + Moringa Compost + Plant | 0.14 | 6.80E-03 | 3.37E-04 | 6.06E-03 | 7.32E-03 |
|  | Polluted Soil + Neem Compost | 0.14 | 8.92E-03 | 1.11E-03 | 7.45E-03 | 1.18E-02 |
|  | Polluted Soil + Neem Compost + Plant | 0.14 | 6.89E-03 | 7.60E-04 | 5.79E-03 | 8.04E-03 |
|  | Polluted Soil + Pawpaw Compost | 0.14 | 1.09E-02 | 7.65E-04 | 9.93E-03 | 1.24E-02 |
|  | Polluted Soil + Pawpaw Compost + Plant | 0.14 | 8.27E-03 | 7.46E-04 | 7.02E-03 | 9.13E-03 |
| Cd | Polluted Soil | 0.001 | 4.92E-02 | 1.22E-02 | 3.76E-02 | 6.20E-02 |
|  | Polluted Soil + Moringa Compost | 0.001 | 4.49E-02 | 2.40E-03 | 4.04E-02 | 4.87E-02 |
|  | Polluted Soil + Moringa Compost + Plant | 0.001 | 4.15E-02 | 2.05E-03 | 3.86E-02 | 4.47E-02 |
|  | Polluted Soil + Neem Compost | 0.001 | 3.51E-02 | 2.31E-03 | 3.18E-02 | 3.82E-02 |
|  | Polluted Soil + Neem Compost + Plant | 0.001 | 2.79E-02 | 2.27E-03 | 2.29E-02 | 3.12E-02 |
|  | Polluted Soil + Pawpaw Compost | 0.001 | 2.98E-02 | 2.18E-03 | 2.66E-02 | 3.38E-02 |
|  | Polluted Soil + Pawpaw Compost + Plant | 0.001 | 2.54E-02 | 2.18E-03 | 2.27E-02 | 2.97E-02 |
| Pb | Polluted Soil | 0.0035 | 3.05E-01 | 1.06E-01 | 1.98E-01 | 4.10E-01 |
|  | Polluted Soil + Moringa Compost | 0.0035 | 1.34E-01 | 4.36E-02 | 8.66E-02 | 2.22E-01 |
|  | Polluted Soil + Moringa Compost + Plant | 0.0035 | 1.00E-01 | 2.11E-02 | 5.67E-02 | 1.22E-01 |
|  | Polluted Soil + Neem Compost | 0.0035 | 1.31E-01 | 3.65E-02 | 8.44E-02 | 2.07E-01 |
|  | Polluted Soil + Neem Compost + Plant | 0.0035 | 9.54E-02 | 9.10E-03 | 8.63E-02 | 1.18E-01 |
|  | Polluted Soil + Pawpaw Compost | 0.0035 | 1.25E-01 | 4.38E-02 | 4.58E-02 | 2.16E-01 |
|  | Polluted Soil + Pawpaw Compost + Plant | 0.0035 | 1.03E-01 | 1.32E-02 | 8.07E-02 | 1.25E-01 |

Table S2: Hazard quotient data of heavy metals exposed to through inhalation by adults

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  | Mean | Std. Deviation | Minimum | Maximum |
| Cu | Polluted Soil | 0.037 | 3.91E-06 | 7.65E-07 | 3.37E-06 | 4.79E-06 |
|  | Polluted Soil + Moringa Compost | 0.037 | 2.19E-06 | 4.42E-07 | 1.75E-06 | 3.41E-06 |
|  | Polluted Soil + Moringa Compost + Plant | 0.037 | 1.59E-06 | 1.68E-07 | 1.26E-06 | 1.92E-06 |
|  | Polluted Soil + Neem Compost | 0.037 | 2.83E-06 | 4.61E-07 | 2.15E-06 | 3.29E-06 |
|  | Polluted Soil + Neem Compost + Plant | 0.037 | 1.89E-06 | 2.84E-07 | 1.37E-06 | 2.39E-06 |
|  | Polluted Soil + Pawpaw Compost | 0.037 | 2.35E-06 | 2.77E-07 | 1.96E-06 | 2.71E-06 |
|  | Polluted Soil + Pawpaw Compost + Plant | 0.037 | 1.75E-06 | 2.67E-07 | 1.35E-06 | 2.26E-06 |
| Zn | Polluted Soil | 0.3 | 2.72E-06 | 5.63E-07 | 2.10E-06 | 3.19E-06 |
|  | Polluted Soil + Moringa Compost | 0.3 | 7.44E-07 | 5.25E-08 | 6.49E-07 | 8.22E-07 |
|  | Polluted Soil + Moringa Compost + Plant | 0.3 | 5.83E-07 | 4.66E-08 | 5.16E-07 | 6.79E-07 |
|  | Polluted Soil + Neem Compost | 0.3 | 6.97E-07 | 8.55E-08 | 5.79E-07 | 8.30E-07 |
|  | Polluted Soil + Neem Compost + Plant | 0.3 | 4.93E-07 | 6.49E-08 | 4.33E-07 | 6.40E-07 |
|  | Polluted Soil + Pawpaw Compost | 0.3 | 7.81E-07 | 5.64E-08 | 6.66E-07 | 8.60E-07 |
|  | Polluted Soil + Pawpaw Compost + Plant | 0.3 | 5.80E-07 | 8.30E-08 | 4.53E-07 | 6.72E-07 |
| Ni | Polluted Soil | 0.02 | 5.15E-07 | 5.65E-08 | 4.69E-07 | 5.78E-07 |
|  | Polluted Soil + Moringa Compost | 0.02 | 3.88E-07 | 4.69E-08 | 3.22E-07 | 5.04E-07 |
|  | Polluted Soil + Moringa Compost + Plant | 0.02 | 3.16E-07 | 3.70E-08 | 2.72E-07 | 4.13E-07 |
|  | Polluted Soil + Neem Compost | 0.02 | 3.27E-07 | 4.43E-08 | 2.71E-07 | 4.16E-07 |
|  | Polluted Soil + Neem Compost + Plant | 0.02 | 2.78E-07 | 4.72E-08 | 1.90E-07 | 3.66E-07 |
|  | Polluted Soil + Pawpaw Compost | 0.02 | 2.63E-07 | 4.76E-08 | 2.05E-07 | 3.47E-07 |
|  | Polluted Soil + Pawpaw Compost + Plant | 0.02 | 2.01E-07 | 2.25E-08 | 1.73E-07 | 2.31E-07 |
| Mn | Polluted Soil | 0.14 | 4.27E-06 | 1.63E-07 | 4.13E-06 | 4.45E-06 |
|  | Polluted Soil + Moringa Compost | 0.14 | 1.22E-06 | 1.15E-07 | 1.06E-06 | 1.52E-06 |
|  | Polluted Soil + Moringa Compost + Plant | 0.14 | 1.03E-06 | 5.11E-08 | 9.18E-07 | 1.11E-06 |
|  | Polluted Soil + Neem Compost | 0.14 | 1.35E-06 | 1.68E-07 | 1.13E-06 | 1.79E-06 |
|  | Polluted Soil + Neem Compost + Plant | 0.14 | 1.04E-06 | 1.15E-07 | 8.77E-07 | 1.22E-06 |
|  | Polluted Soil + Pawpaw Compost | 0.14 | 1.66E-06 | 1.16E-07 | 1.50E-06 | 1.88E-06 |
|  | Polluted Soil + Pawpaw Compost + Plant | 0.14 | 1.25E-06 | 1.13E-07 | 1.06E-06 | 1.38E-06 |
| Cd | Polluted Soil | 0.001 | 7.45E-06 | 1.85E-06 | 5.70E-06 | 9.39E-06 |
|  | Polluted Soil + Moringa Compost | 0.001 | 6.80E-06 | 3.63E-07 | 6.12E-06 | 7.37E-06 |
|  | Polluted Soil + Moringa Compost + Plant | 0.001 | 6.28E-06 | 3.11E-07 | 5.84E-06 | 6.78E-06 |
|  | Polluted Soil + Neem Compost | 0.001 | 5.33E-06 | 3.50E-07 | 4.82E-06 | 5.78E-06 |
|  | Polluted Soil + Neem Compost + Plant | 0.001 | 4.23E-06 | 3.44E-07 | 3.47E-06 | 4.72E-06 |
|  | Polluted Soil + Pawpaw Compost | 0.001 | 4.51E-06 | 3.30E-07 | 4.03E-06 | 5.12E-06 |
|  | Polluted Soil + Pawpaw Compost + Plant | 0.001 | 3.85E-06 | 3.30E-07 | 3.44E-06 | 4.49E-06 |
| Pb | Polluted Soil | 0.0035 | 4.63E-05 | 1.61E-05 | 3.00E-05 | 6.21E-05 |
|  | Polluted Soil + Moringa Compost | 0.0035 | 2.02E-05 | 6.60E-06 | 1.31E-05 | 3.37E-05 |
|  | Polluted Soil + Moringa Compost + Plant | 0.0035 | 1.52E-05 | 3.19E-06 | 8.59E-06 | 1.85E-05 |
|  | Polluted Soil + Neem Compost | 0.0035 | 1.99E-05 | 5.53E-06 | 1.28E-05 | 3.13E-05 |
|  | Polluted Soil + Neem Compost + Plant | 0.0035 | 1.45E-05 | 1.38E-06 | 1.31E-05 | 1.78E-05 |
|  | Polluted Soil + Pawpaw Compost | 0.0035 | 1.90E-05 | 6.64E-06 | 6.94E-06 | 3.28E-05 |
|  | Polluted Soil + Pawpaw Compost + Plant | 0.0035 | 1.56E-05 | 2.00E-06 | 1.22E-05 | 1.90E-05 |

Table S3:Hazard quotient data of heavy metals exposed to through dermal contact by adults

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  | Mean | Std. Deviation | Minimum | Maximum |
| Cu | Polluted Soil | 0.037 | 3.25E-05 | 6.37E-06 | 2.80E-05 | 3.98E-05 |
|  | Polluted Soil + Moringa Compost | 0.037 | 1.82E-05 | 3.67E-06 | 1.46E-05 | 2.83E-05 |
|  | Polluted Soil + Moringa Compost + Plant | 0.037 | 1.32E-05 | 1.39E-06 | 1.04E-05 | 1.60E-05 |
|  | Polluted Soil + Neem Compost | 0.037 | 2.35E-05 | 3.83E-06 | 1.79E-05 | 2.73E-05 |
|  | Polluted Soil + Neem Compost + Plant | 0.037 | 1.57E-05 | 2.36E-06 | 1.14E-05 | 1.99E-05 |
|  | Polluted Soil + Pawpaw Compost | 0.037 | 1.96E-05 | 2.30E-06 | 1.63E-05 | 2.25E-05 |
|  | Polluted Soil + Pawpaw Compost + Plant | 0.037 | 1.45E-05 | 2.22E-06 | 1.12E-05 | 1.88E-05 |
| Zn | Polluted Soil | 0.3 | 2.26E-05 | 4.68E-06 | 1.74E-05 | 2.66E-05 |
|  | Polluted Soil + Moringa Compost | 0.3 | 6.19E-06 | 4.37E-07 | 5.40E-06 | 6.83E-06 |
|  | Polluted Soil + Moringa Compost + Plant | 0.3 | 4.85E-06 | 3.87E-07 | 4.29E-06 | 5.65E-06 |
|  | Polluted Soil + Neem Compost | 0.3 | 5.80E-06 | 7.11E-07 | 4.81E-06 | 6.90E-06 |
|  | Polluted Soil + Neem Compost + Plant | 0.3 | 4.10E-06 | 5.39E-07 | 3.60E-06 | 5.33E-06 |
|  | Polluted Soil + Pawpaw Compost | 0.3 | 6.49E-06 | 4.69E-07 | 5.54E-06 | 7.15E-06 |
|  | Polluted Soil + Pawpaw Compost + Plant | 0.3 | 4.82E-06 | 6.90E-07 | 3.76E-06 | 5.59E-06 |
| Ni | Polluted Soil | 0.02 | 4.29E-06 | 4.70E-07 | 3.90E-06 | 4.81E-06 |
|  | Polluted Soil + Moringa Compost | 0.02 | 3.23E-06 | 3.90E-07 | 2.68E-06 | 4.19E-06 |
|  | Polluted Soil + Moringa Compost + Plant | 0.02 | 2.63E-06 | 3.08E-07 | 2.26E-06 | 3.43E-06 |
|  | Polluted Soil + Neem Compost | 0.02 | 2.72E-06 | 3.68E-07 | 2.25E-06 | 3.46E-06 |
|  | Polluted Soil + Neem Compost + Plant | 0.02 | 2.31E-06 | 3.93E-07 | 1.58E-06 | 3.04E-06 |
|  | Polluted Soil + Pawpaw Compost | 0.02 | 2.19E-06 | 3.96E-07 | 1.70E-06 | 2.88E-06 |
|  | Polluted Soil + Pawpaw Compost + Plant | 0.02 | 1.67E-06 | 1.87E-07 | 1.44E-06 | 1.92E-06 |
| Mn | Polluted Soil | 0.14 | 3.55E-05 | 1.36E-06 | 3.44E-05 | 3.70E-05 |
|  | Polluted Soil + Moringa Compost | 0.14 | 1.01E-05 | 9.55E-07 | 8.85E-06 | 1.26E-05 |
|  | Polluted Soil + Moringa Compost + Plant | 0.14 | 8.57E-06 | 4.25E-07 | 7.63E-06 | 9.22E-06 |
|  | Polluted Soil + Neem Compost | 0.14 | 1.12E-05 | 1.39E-06 | 9.39E-06 | 1.49E-05 |
|  | Polluted Soil + Neem Compost + Plant | 0.14 | 8.69E-06 | 9.58E-07 | 7.29E-06 | 1.01E-05 |
|  | Polluted Soil + Pawpaw Compost | 0.14 | 1.38E-05 | 9.64E-07 | 1.25E-05 | 1.56E-05 |
|  | Polluted Soil + Pawpaw Compost + Plant | 0.14 | 1.04E-05 | 9.40E-07 | 8.85E-06 | 1.15E-05 |
| Cd | Polluted Soil | 0.001 | 6.20E-05 | 1.54E-05 | 4.74E-05 | 7.81E-05 |
|  | Polluted Soil + Moringa Compost | 0.001 | 5.65E-05 | 3.02E-06 | 5.09E-05 | 6.13E-05 |
|  | Polluted Soil + Moringa Compost + Plant | 0.001 | 5.23E-05 | 2.58E-06 | 4.86E-05 | 5.64E-05 |
|  | Polluted Soil + Neem Compost | 0.001 | 4.43E-05 | 2.91E-06 | 4.01E-05 | 4.81E-05 |
|  | Polluted Soil + Neem Compost + Plant | 0.001 | 3.52E-05 | 2.86E-06 | 2.88E-05 | 3.93E-05 |
|  | Polluted Soil + Pawpaw Compost | 0.001 | 3.75E-05 | 2.75E-06 | 3.35E-05 | 4.26E-05 |
|  | Polluted Soil + Pawpaw Compost + Plant | 0.001 | 3.20E-05 | 2.75E-06 | 2.86E-05 | 3.74E-05 |
| Pb | Polluted Soil | 0.0035 | 3.85E-04 | 1.33E-04 | 2.50E-04 | 5.17E-04 |
|  | Polluted Soil + Moringa Compost | 0.0035 | 1.68E-04 | 5.49E-05 | 1.09E-04 | 2.80E-04 |
|  | Polluted Soil + Moringa Compost + Plant | 0.0035 | 1.26E-04 | 2.65E-05 | 7.14E-05 | 1.54E-04 |
|  | Polluted Soil + Neem Compost | 0.0035 | 1.66E-04 | 4.60E-05 | 1.06E-04 | 2.60E-04 |
|  | Polluted Soil + Neem Compost + Plant | 0.0035 | 1.20E-04 | 1.15E-05 | 1.09E-04 | 1.48E-04 |
|  | Polluted Soil + Pawpaw Compost | 0.0035 | 1.58E-04 | 5.52E-05 | 5.77E-05 | 2.73E-04 |
|  | Polluted Soil + Pawpaw Compost + Plant | 0.0035 | 1.30E-04 | 1.66E-05 | 1.02E-04 | 1.58E-04 |

Table S4: Hazard quotient data of heavy metals exposed to through ingestion by children

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  | Mean | Std. Deviation | Minimum | Maximum |
| Cu | Polluted Soil | 0.037 | 3.75E-01 | 7.34E-02 | 3.23E-01 | 4.59E-01 |
|  | Polluted Soil + Moringa Compost | 0.037 | 2.10E-01 | 4.24E-02 | 1.68E-01 | 3.27E-01 |
|  | Polluted Soil + Moringa Compost + Plant | 0.037 | 1.53E-01 | 1.61E-02 | 1.21E-01 | 1.85E-01 |
|  | Polluted Soil + Neem Compost | 0.037 | 2.71E-01 | 4.42E-02 | 2.06E-01 | 3.15E-01 |
|  | Polluted Soil + Neem Compost + Plant | 0.037 | 1.81E-01 | 2.73E-02 | 1.32E-01 | 2.29E-01 |
|  | Polluted Soil + Pawpaw Compost | 0.037 | 2.26E-01 | 2.65E-02 | 1.88E-01 | 2.60E-01 |
|  | Polluted Soil + Pawpaw Compost + Plant | 0.037 | 1.68E-01 | 2.56E-02 | 1.29E-01 | 2.17E-01 |
| Zn | Polluted Soil | 0.3 | 2.61E-01 | 5.40E-02 | 2.01E-01 | 3.06E-01 |
|  | Polluted Soil + Moringa Compost | 0.3 | 7.14E-02 | 5.04E-03 | 6.23E-02 | 7.88E-02 |
|  | Polluted Soil + Moringa Compost + Plant | 0.3 | 5.59E-02 | 4.47E-03 | 4.95E-02 | 6.52E-02 |
|  | Polluted Soil + Neem Compost | 0.3 | 6.68E-02 | 8.20E-03 | 5.55E-02 | 7.96E-02 |
|  | Polluted Soil + Neem Compost + Plant | 0.3 | 4.73E-02 | 6.22E-03 | 4.16E-02 | 6.14E-02 |
|  | Polluted Soil + Pawpaw Compost | 0.3 | 7.49E-02 | 5.41E-03 | 6.39E-02 | 8.25E-02 |
|  | Polluted Soil + Pawpaw Compost + Plant | 0.3 | 5.56E-02 | 7.96E-03 | 4.34E-02 | 6.45E-02 |
| Ni | Polluted Soil | 0.02 | 4.94E-02 | 5.42E-03 | 4.50E-02 | 5.55E-02 |
|  | Polluted Soil + Moringa Compost | 0.02 | 3.72E-02 | 4.50E-03 | 3.09E-02 | 4.83E-02 |
|  | Polluted Soil + Moringa Compost + Plant | 0.02 | 3.03E-02 | 3.55E-03 | 2.60E-02 | 3.96E-02 |
|  | Polluted Soil + Neem Compost | 0.02 | 3.14E-02 | 4.25E-03 | 2.60E-02 | 3.99E-02 |
|  | Polluted Soil + Neem Compost + Plant | 0.02 | 2.66E-02 | 4.53E-03 | 1.83E-02 | 3.51E-02 |
|  | Polluted Soil + Pawpaw Compost | 0.02 | 2.52E-02 | 4.56E-03 | 1.96E-02 | 3.33E-02 |
|  | Polluted Soil + Pawpaw Compost + Plant | 0.02 | 1.93E-02 | 2.15E-03 | 1.66E-02 | 2.22E-02 |
| Mn | Polluted Soil | 0.14 | 4.10E-01 | 1.57E-02 | 3.96E-01 | 4.27E-01 |
|  | Polluted Soil + Moringa Compost | 0.14 | 1.17E-01 | 1.10E-02 | 1.02E-01 | 1.45E-01 |
|  | Polluted Soil + Moringa Compost + Plant | 0.14 | 9.88E-02 | 4.90E-03 | 8.81E-02 | 1.06E-01 |
|  | Polluted Soil + Neem Compost | 0.14 | 1.30E-01 | 1.61E-02 | 1.08E-01 | 1.72E-01 |
|  | Polluted Soil + Neem Compost + Plant | 0.14 | 1.00E-01 | 1.10E-02 | 8.41E-02 | 1.17E-01 |
|  | Polluted Soil + Pawpaw Compost | 0.14 | 1.59E-01 | 1.11E-02 | 1.44E-01 | 1.80E-01 |
|  | Polluted Soil + Pawpaw Compost + Plant | 0.14 | 1.20E-01 | 1.08E-02 | 1.02E-01 | 1.33E-01 |
| Cd | Polluted Soil | 0.001 | 7.15E-01 | 1.77E-01 | 5.47E-01 | 9.01E-01 |
|  | Polluted Soil + Moringa Compost | 0.001 | 6.52E-01 | 3.49E-02 | 5.87E-01 | 7.07E-01 |
|  | Polluted Soil + Moringa Compost + Plant | 0.001 | 6.03E-01 | 2.98E-02 | 5.60E-01 | 6.50E-01 |
|  | Polluted Soil + Neem Compost | 0.001 | 5.11E-01 | 3.36E-02 | 4.63E-01 | 5.55E-01 |
|  | Polluted Soil + Neem Compost + Plant | 0.001 | 4.06E-01 | 3.30E-02 | 3.33E-01 | 4.53E-01 |
|  | Polluted Soil + Pawpaw Compost | 0.001 | 4.33E-01 | 3.17E-02 | 3.87E-01 | 4.91E-01 |
|  | Polluted Soil + Pawpaw Compost + Plant | 0.001 | 3.69E-01 | 3.17E-02 | 3.30E-01 | 4.31E-01 |
| Pb | Polluted Soil | 0.0035 | 4.44E+00 | 1.54E+00 | 2.88E+00 | 5.96E+00 |
|  | Polluted Soil + Moringa Compost | 0.0035 | 1.94E+00 | 6.33E-01 | 1.26E+00 | 3.23E+00 |
|  | Polluted Soil + Moringa Compost + Plant | 0.0035 | 1.45E+00 | 3.06E-01 | 8.24E-01 | 1.78E+00 |
|  | Polluted Soil + Neem Compost | 0.0035 | 1.91E+00 | 5.31E-01 | 1.23E+00 | 3.00E+00 |
|  | Polluted Soil + Neem Compost + Plant | 0.0035 | 1.39E+00 | 1.32E-01 | 1.25E+00 | 1.71E+00 |
|  | Polluted Soil + Pawpaw Compost | 0.0035 | 1.82E+00 | 6.37E-01 | 6.65E-01 | 3.15E+00 |
|  | Polluted Soil + Pawpaw Compost + Plant | 0.0035 | 1.50E+00 | 1.91E-01 | 1.17E+00 | 1.82E+00 |

Table S5: Hazard quotient data of heavy metals exposed to through inhalation by children

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  | Mean | Std. Deviation | Minimum | Maximum |
| Cu | Polluted Soil | 0.037 | 7.10E-06 | 1.39E-06 | 6.12E-06 | 8.69E-06 |
|  | Polluted Soil + Moringa Compost | 0.037 | 3.97E-06 | 8.02E-07 | 3.18E-06 | 6.19E-06 |
|  | Polluted Soil + Moringa Compost + Plant | 0.037 | 2.89E-06 | 3.05E-07 | 2.28E-06 | 3.50E-06 |
|  | Polluted Soil + Neem Compost | 0.037 | 5.14E-06 | 8.37E-07 | 3.91E-06 | 5.97E-06 |
|  | Polluted Soil + Neem Compost + Plant | 0.037 | 3.43E-06 | 5.16E-07 | 2.50E-06 | 4.34E-06 |
|  | Polluted Soil + Pawpaw Compost | 0.037 | 4.27E-06 | 5.03E-07 | 3.56E-06 | 4.92E-06 |
|  | Polluted Soil + Pawpaw Compost + Plant | 0.037 | 3.17E-06 | 4.85E-07 | 2.44E-06 | 4.10E-06 |
| Zn | Polluted Soil | 0.3 | 4.95E-06 | 1.02E-06 | 3.81E-06 | 5.80E-06 |
|  | Polluted Soil + Moringa Compost | 0.3 | 1.35E-06 | 9.54E-08 | 1.18E-06 | 1.49E-06 |
|  | Polluted Soil + Moringa Compost + Plant | 0.3 | 1.06E-06 | 8.46E-08 | 9.37E-07 | 1.23E-06 |
|  | Polluted Soil + Neem Compost | 0.3 | 1.27E-06 | 1.55E-07 | 1.05E-06 | 1.51E-06 |
|  | Polluted Soil + Neem Compost + Plant | 0.3 | 8.96E-07 | 1.18E-07 | 7.87E-07 | 1.16E-06 |
|  | Polluted Soil + Pawpaw Compost | 0.3 | 1.42E-06 | 1.03E-07 | 1.21E-06 | 1.56E-06 |
|  | Polluted Soil + Pawpaw Compost + Plant | 0.3 | 1.05E-06 | 1.51E-07 | 8.22E-07 | 1.22E-06 |
| Ni | Polluted Soil | 0.02 | 9.36E-07 | 1.03E-07 | 8.52E-07 | 1.05E-06 |
|  | Polluted Soil + Moringa Compost | 0.02 | 7.05E-07 | 8.52E-08 | 5.85E-07 | 9.15E-07 |
|  | Polluted Soil + Moringa Compost + Plant | 0.02 | 5.74E-07 | 6.72E-08 | 4.93E-07 | 7.50E-07 |
|  | Polluted Soil + Neem Compost | 0.02 | 5.94E-07 | 8.04E-08 | 4.92E-07 | 7.55E-07 |
|  | Polluted Soil + Neem Compost + Plant | 0.02 | 5.04E-07 | 8.58E-08 | 3.46E-07 | 6.65E-07 |
|  | Polluted Soil + Pawpaw Compost | 0.02 | 4.78E-07 | 8.64E-08 | 3.72E-07 | 6.30E-07 |
|  | Polluted Soil + Pawpaw Compost + Plant | 0.02 | 3.66E-07 | 4.08E-08 | 3.14E-07 | 4.20E-07 |
| Mn | Polluted Soil | 0.14 | 7.77E-06 | 2.97E-07 | 7.51E-06 | 8.09E-06 |
|  | Polluted Soil + Moringa Compost | 0.14 | 2.22E-06 | 2.09E-07 | 1.93E-06 | 2.75E-06 |
|  | Polluted Soil + Moringa Compost + Plant | 0.14 | 1.87E-06 | 9.29E-08 | 1.67E-06 | 2.01E-06 |
|  | Polluted Soil + Neem Compost | 0.14 | 2.46E-06 | 3.04E-07 | 2.05E-06 | 3.26E-06 |
|  | Polluted Soil + Neem Compost + Plant | 0.14 | 1.90E-06 | 2.09E-07 | 1.59E-06 | 2.21E-06 |
|  | Polluted Soil + Pawpaw Compost | 0.14 | 3.01E-06 | 2.10E-07 | 2.73E-06 | 3.42E-06 |
|  | Polluted Soil + Pawpaw Compost + Plant | 0.14 | 2.28E-06 | 2.05E-07 | 1.93E-06 | 2.51E-06 |
| Cd | Polluted Soil | 0.001 | 1.35E-05 | 3.36E-06 | 1.04E-05 | 1.71E-05 |
|  | Polluted Soil + Moringa Compost | 0.001 | 1.24E-05 | 6.60E-07 | 1.11E-05 | 1.34E-05 |
|  | Polluted Soil + Moringa Compost + Plant | 0.001 | 1.14E-05 | 5.64E-07 | 1.06E-05 | 1.23E-05 |
|  | Polluted Soil + Neem Compost | 0.001 | 9.67E-06 | 6.36E-07 | 8.76E-06 | 1.05E-05 |
|  | Polluted Soil + Neem Compost + Plant | 0.001 | 7.68E-06 | 6.24E-07 | 6.30E-06 | 8.58E-06 |
|  | Polluted Soil + Pawpaw Compost | 0.001 | 8.20E-06 | 6.00E-07 | 7.32E-06 | 9.30E-06 |
|  | Polluted Soil + Pawpaw Compost + Plant | 0.001 | 7.00E-06 | 6.00E-07 | 6.25E-06 | 8.16E-06 |
| Pb | Polluted Soil | 0.0035 | 8.40E-05 | 2.92E-05 | 5.45E-05 | 1.13E-04 |
|  | Polluted Soil + Moringa Compost | 0.0035 | 3.68E-05 | 1.20E-05 | 2.38E-05 | 6.12E-05 |
|  | Polluted Soil + Moringa Compost + Plant | 0.0035 | 2.75E-05 | 5.80E-06 | 1.56E-05 | 3.37E-05 |
|  | Polluted Soil + Neem Compost | 0.0035 | 3.62E-05 | 1.00E-05 | 2.32E-05 | 5.68E-05 |
|  | Polluted Soil + Neem Compost + Plant | 0.0035 | 2.63E-05 | 2.50E-06 | 2.37E-05 | 3.24E-05 |
|  | Polluted Soil + Pawpaw Compost | 0.0035 | 3.45E-05 | 1.21E-05 | 1.26E-05 | 5.96E-05 |
|  | Polluted Soil + Pawpaw Compost + Plant | 0.0035 | 2.84E-05 | 3.63E-06 | 2.22E-05 | 3.45E-05 |

Table S6: Hazard quotient data of heavy metals exposed to through dermal contact by children

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  | Mean | Std. Deviation | Minimum | Maximum |
| Cu | Polluted Soil | 0.037 | 2.36E-04 | 4.63E-05 | 2.03E-04 | 2.89E-04 |
|  | Polluted Soil + Moringa Compost | 0.037 | 1.32E-04 | 2.67E-05 | 1.06E-04 | 2.06E-04 |
|  | Polluted Soil + Moringa Compost + Plant | 0.037 | 9.62E-05 | 1.01E-05 | 7.59E-05 | 1.16E-04 |
|  | Polluted Soil + Neem Compost | 0.037 | 1.71E-04 | 2.78E-05 | 1.30E-04 | 1.99E-04 |
|  | Polluted Soil + Neem Compost + Plant | 0.037 | 1.14E-04 | 1.72E-05 | 8.30E-05 | 1.44E-04 |
|  | Polluted Soil + Pawpaw Compost | 0.037 | 1.42E-04 | 1.67E-05 | 1.18E-04 | 1.64E-04 |
|  | Polluted Soil + Pawpaw Compost + Plant | 0.037 | 1.06E-04 | 1.61E-05 | 8.13E-05 | 1.36E-04 |
| Zn | Polluted Soil | 0.3 | 1.65E-04 | 3.40E-05 | 1.27E-04 | 1.93E-04 |
|  | Polluted Soil + Moringa Compost | 0.3 | 4.50E-05 | 3.17E-06 | 3.92E-05 | 4.96E-05 |
|  | Polluted Soil + Moringa Compost + Plant | 0.3 | 3.52E-05 | 2.81E-06 | 3.12E-05 | 4.11E-05 |
|  | Polluted Soil + Neem Compost | 0.3 | 4.21E-05 | 5.17E-06 | 3.50E-05 | 5.01E-05 |
|  | Polluted Soil + Neem Compost + Plant | 0.3 | 2.98E-05 | 3.92E-06 | 2.62E-05 | 3.87E-05 |
|  | Polluted Soil + Pawpaw Compost | 0.3 | 4.72E-05 | 3.41E-06 | 4.02E-05 | 5.20E-05 |
|  | Polluted Soil + Pawpaw Compost + Plant | 0.3 | 3.51E-05 | 5.01E-06 | 2.74E-05 | 4.06E-05 |
| Ni | Polluted Soil | 0.02 | 3.11E-05 | 3.41E-06 | 2.83E-05 | 3.49E-05 |
|  | Polluted Soil + Moringa Compost | 0.02 | 2.35E-05 | 2.83E-06 | 1.95E-05 | 3.04E-05 |
|  | Polluted Soil + Moringa Compost + Plant | 0.02 | 1.91E-05 | 2.24E-06 | 1.64E-05 | 2.50E-05 |
|  | Polluted Soil + Neem Compost | 0.02 | 1.98E-05 | 2.68E-06 | 1.64E-05 | 2.51E-05 |
|  | Polluted Soil + Neem Compost + Plant | 0.02 | 1.68E-05 | 2.85E-06 | 1.15E-05 | 2.21E-05 |
|  | Polluted Soil + Pawpaw Compost | 0.02 | 1.59E-05 | 2.87E-06 | 1.24E-05 | 2.10E-05 |
|  | Polluted Soil + Pawpaw Compost + Plant | 0.02 | 1.22E-05 | 1.36E-06 | 1.05E-05 | 1.40E-05 |
| Mn | Polluted Soil | 0.14 | 2.58E-04 | 9.88E-06 | 2.50E-04 | 2.69E-04 |
|  | Polluted Soil + Moringa Compost | 0.14 | 7.37E-05 | 6.94E-06 | 6.43E-05 | 9.16E-05 |
|  | Polluted Soil + Moringa Compost + Plant | 0.14 | 6.23E-05 | 3.09E-06 | 5.55E-05 | 6.70E-05 |
|  | Polluted Soil + Neem Compost | 0.14 | 8.17E-05 | 1.01E-05 | 6.82E-05 | 1.08E-04 |
|  | Polluted Soil + Neem Compost + Plant | 0.14 | 6.31E-05 | 6.96E-06 | 5.30E-05 | 7.37E-05 |
|  | Polluted Soil + Pawpaw Compost | 0.14 | 1.00E-04 | 7.00E-06 | 9.09E-05 | 1.14E-04 |
|  | Polluted Soil + Pawpaw Compost + Plant | 0.14 | 7.58E-05 | 6.83E-06 | 6.43E-05 | 8.36E-05 |
| Cd | Polluted Soil | 0.001 | 4.50E-04 | 1.12E-04 | 3.45E-04 | 5.67E-04 |
|  | Polluted Soil + Moringa Compost | 0.001 | 4.11E-04 | 2.20E-05 | 3.70E-04 | 4.46E-04 |
|  | Polluted Soil + Moringa Compost + Plant | 0.001 | 3.80E-04 | 1.88E-05 | 3.53E-04 | 4.10E-04 |
|  | Polluted Soil + Neem Compost | 0.001 | 3.22E-04 | 2.12E-05 | 2.91E-04 | 3.49E-04 |
|  | Polluted Soil + Neem Compost + Plant | 0.001 | 2.56E-04 | 2.08E-05 | 2.10E-04 | 2.85E-04 |
|  | Polluted Soil + Pawpaw Compost | 0.001 | 2.73E-04 | 2.00E-05 | 2.44E-04 | 3.09E-04 |
|  | Polluted Soil + Pawpaw Compost + Plant | 0.001 | 2.33E-04 | 2.00E-05 | 2.08E-04 | 2.72E-04 |
| Pb | Polluted Soil | 0.0035 | 2.80E-03 | 9.70E-04 | 1.81E-03 | 3.75E-03 |
|  | Polluted Soil + Moringa Compost | 0.0035 | 1.22E-03 | 3.99E-04 | 7.93E-04 | 2.04E-03 |
|  | Polluted Soil + Moringa Compost + Plant | 0.0035 | 9.16E-04 | 1.93E-04 | 5.19E-04 | 1.12E-03 |
|  | Polluted Soil + Neem Compost | 0.0035 | 1.20E-03 | 3.34E-04 | 7.73E-04 | 1.89E-03 |
|  | Polluted Soil + Neem Compost + Plant | 0.0035 | 8.74E-04 | 8.33E-05 | 7.90E-04 | 1.08E-03 |
|  | Polluted Soil + Pawpaw Compost | 0.0035 | 1.15E-03 | 4.01E-04 | 4.19E-04 | 1.98E-03 |
|  | Polluted Soil + Pawpaw Compost + Plant | 0.0035 | 9.43E-04 | 1.21E-04 | 7.39E-04 | 1.15E-03 |

Table S7: Cancer Risk of heavy metals exposed to through ingestion by adults

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  | Mean | Std. Deviation | Minimum | Maximum |
| Ni | Polluted Soil | 0.84 | 4.15E-04 | 4.55E-05 | 3.78E-04 | 4.66E-04 |
|  | Polluted Soil + Moringa Compost | 0.84 | 3.13E-04 | 3.78E-05 | 2.60E-04 | 4.06E-04 |
|  | Polluted Soil + Moringa Compost + Plant | 0.84 | 2.55E-04 | 2.98E-05 | 2.19E-04 | 3.33E-04 |
|  | Polluted Soil + Neem Compost | 0.84 | 2.64E-04 | 3.57E-05 | 2.18E-04 | 3.35E-04 |
|  | Polluted Soil + Neem Compost + Plant | 0.84 | 2.24E-04 | 3.81E-05 | 1.53E-04 | 2.95E-04 |
|  | Polluted Soil + Pawpaw Compost | 0.84 | 2.12E-04 | 3.83E-05 | 1.65E-04 | 2.80E-04 |
|  | Polluted Soil + Pawpaw Compost + Plant | 0.84 | 1.62E-04 | 1.81E-05 | 1.39E-04 | 1.86E-04 |
| Cd | Polluted Soil | 6.1 | 2.18E-03 | 5.41E-04 | 1.67E-03 | 2.75E-03 |
|  | Polluted Soil + Moringa Compost | 6.1 | 1.99E-03 | 1.06E-04 | 1.79E-03 | 2.16E-03 |
|  | Polluted Soil + Moringa Compost + Plant | 6.1 | 1.84E-03 | 9.09E-05 | 1.71E-03 | 1.98E-03 |
|  | Polluted Soil + Neem Compost | 6.1 | 1.56E-03 | 1.02E-04 | 1.41E-03 | 1.69E-03 |
|  | Polluted Soil + Neem Compost + Plant | 6.1 | 1.24E-03 | 1.01E-04 | 1.01E-03 | 1.38E-03 |
|  | Polluted Soil + Pawpaw Compost | 6.1 | 1.32E-03 | 9.67E-05 | 1.18E-03 | 1.50E-03 |
|  | Polluted Soil + Pawpaw Compost + Plant | 6.1 | 1.13E-03 | 9.67E-05 | 1.01E-03 | 1.31E-03 |
| Pb | Polluted Soil | 0.0085 | 6.60E-05 | 2.29E-05 | 4.28E-05 | 8.86E-05 |
|  | Polluted Soil + Moringa Compost | 0.0085 | 2.89E-05 | 9.42E-06 | 1.87E-05 | 4.81E-05 |
|  | Polluted Soil + Moringa Compost + Plant | 0.0085 | 2.16E-05 | 4.55E-06 | 1.23E-05 | 2.65E-05 |
|  | Polluted Soil + Neem Compost | 0.0085 | 2.84E-05 | 7.89E-06 | 1.82E-05 | 4.46E-05 |
|  | Polluted Soil + Neem Compost + Plant | 0.0085 | 2.06E-05 | 1.97E-06 | 1.87E-05 | 2.55E-05 |
|  | Polluted Soil + Pawpaw Compost | 0.0085 | 2.71E-05 | 9.47E-06 | 9.90E-06 | 4.68E-05 |
|  | Polluted Soil + Pawpaw Compost + Plant | 0.0085 | 2.23E-05 | 2.85E-06 | 1.74E-05 | 2.71E-05 |

Table S8: Cancer Risk of heavy metals exposed to through inhalation by adults

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  | Mean | Std. Deviation | Minimum | Maximum |
| Ni | Polluted Soil | 0.84 | 6.29E-08 | 6.90E-09 | 5.73E-08 | 7.06E-08 |
|  | Polluted Soil + Moringa Compost | 0.84 | 4.74E-08 | 5.73E-09 | 3.93E-08 | 6.15E-08 |
|  | Polluted Soil + Moringa Compost + Plant | 0.84 | 3.86E-08 | 4.52E-09 | 3.32E-08 | 5.04E-08 |
|  | Polluted Soil + Neem Compost | 0.84 | 3.99E-08 | 5.40E-09 | 3.31E-08 | 5.07E-08 |
|  | Polluted Soil + Neem Compost + Plant | 0.84 | 3.39E-08 | 5.77E-09 | 2.32E-08 | 4.47E-08 |
|  | Polluted Soil + Pawpaw Compost | 0.84 | 3.21E-08 | 5.81E-09 | 2.50E-08 | 4.23E-08 |
|  | Polluted Soil + Pawpaw Compost + Plant | 0.84 | 2.46E-08 | 2.74E-09 | 2.11E-08 | 2.82E-08 |
| Cd | Polluted Soil | 6.1 | 3.30E-07 | 8.20E-08 | 2.53E-07 | 4.16E-07 |
|  | Polluted Soil + Moringa Compost | 6.1 | 3.01E-07 | 1.61E-08 | 2.71E-07 | 3.27E-07 |
|  | Polluted Soil + Moringa Compost + Plant | 6.1 | 2.79E-07 | 1.38E-08 | 2.59E-07 | 3.01E-07 |
|  | Polluted Soil + Neem Compost | 6.1 | 2.36E-07 | 1.55E-08 | 2.14E-07 | 2.56E-07 |
|  | Polluted Soil + Neem Compost + Plant | 6.1 | 1.87E-07 | 1.52E-08 | 1.54E-07 | 2.09E-07 |
|  | Polluted Soil + Pawpaw Compost | 6.1 | 2.00E-07 | 1.46E-08 | 1.79E-07 | 2.27E-07 |
|  | Polluted Soil + Pawpaw Compost + Plant | 6.1 | 1.71E-07 | 1.46E-08 | 1.53E-07 | 1.99E-07 |
| Pb | Polluted Soil | 0.0085 | 1.00E-08 | 3.47E-09 | 6.49E-09 | 1.34E-08 |
|  | Polluted Soil + Moringa Compost | 0.0085 | 4.38E-09 | 1.43E-09 | 2.84E-09 | 7.28E-09 |
|  | Polluted Soil + Moringa Compost + Plant | 0.0085 | 3.28E-09 | 6.90E-10 | 1.86E-09 | 4.01E-09 |
|  | Polluted Soil + Neem Compost | 0.0085 | 4.31E-09 | 1.20E-09 | 2.77E-09 | 6.76E-09 |
|  | Polluted Soil + Neem Compost + Plant | 0.0085 | 3.13E-09 | 2.98E-10 | 2.83E-09 | 3.86E-09 |
|  | Polluted Soil + Pawpaw Compost | 0.0085 | 4.11E-09 | 1.43E-09 | 1.50E-09 | 7.09E-09 |
|  | Polluted Soil + Pawpaw Compost + Plant | 0.0085 | 3.37E-09 | 4.31E-10 | 2.64E-09 | 4.10E-09 |

Table S9: Cancer Risk of heavy metals exposed to through dermal contact by adults

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  | Mean | Std. Deviation | Minimum | Maximum |
| Ni | Polluted Soil | 0.84 | 5.23E-07 | 5.74E-08 | 4.76E-07 | 5.87E-07 |
|  | Polluted Soil + Moringa Compost | 0.84 | 3.94E-07 | 4.76E-08 | 3.27E-07 | 5.11E-07 |
|  | Polluted Soil + Moringa Compost + Plant | 0.84 | 3.21E-07 | 3.76E-08 | 2.76E-07 | 4.19E-07 |
|  | Polluted Soil + Neem Compost | 0.84 | 3.32E-07 | 4.49E-08 | 2.75E-07 | 4.22E-07 |
|  | Polluted Soil + Neem Compost + Plant | 0.84 | 2.82E-07 | 4.80E-08 | 1.93E-07 | 3.72E-07 |
|  | Polluted Soil + Pawpaw Compost | 0.84 | 2.67E-07 | 4.83E-08 | 2.08E-07 | 3.52E-07 |
|  | Polluted Soil + Pawpaw Compost + Plant | 0.84 | 2.04E-07 | 2.28E-08 | 1.76E-07 | 2.35E-07 |
| Cd | Polluted Soil | 6.1 | 2.75E-06 | 6.82E-07 | 2.10E-06 | 3.46E-06 |
|  | Polluted Soil + Moringa Compost | 6.1 | 2.51E-06 | 1.34E-07 | 2.26E-06 | 2.72E-06 |
|  | Polluted Soil + Moringa Compost + Plant | 6.1 | 2.32E-06 | 1.14E-07 | 2.15E-06 | 2.50E-06 |
|  | Polluted Soil + Neem Compost | 6.1 | 1.96E-06 | 1.29E-07 | 1.78E-06 | 2.13E-06 |
|  | Polluted Soil + Neem Compost + Plant | 6.1 | 1.56E-06 | 1.27E-07 | 1.28E-06 | 1.74E-06 |
|  | Polluted Soil + Pawpaw Compost | 6.1 | 1.66E-06 | 1.22E-07 | 1.49E-06 | 1.89E-06 |
|  | Polluted Soil + Pawpaw Compost + Plant | 6.1 | 1.42E-06 | 1.22E-07 | 1.27E-06 | 1.66E-06 |
| Pb | Polluted Soil | 0.0085 | 8.32E-08 | 2.89E-08 | 5.40E-08 | 1.12E-07 |
|  | Polluted Soil + Moringa Compost | 0.0085 | 3.64E-08 | 1.19E-08 | 2.36E-08 | 6.06E-08 |
|  | Polluted Soil + Moringa Compost + Plant | 0.0085 | 2.72E-08 | 5.74E-09 | 1.54E-08 | 3.33E-08 |
|  | Polluted Soil + Neem Compost | 0.0085 | 3.58E-08 | 9.94E-09 | 2.30E-08 | 5.63E-08 |
|  | Polluted Soil + Neem Compost + Plant | 0.0085 | 2.60E-08 | 2.48E-09 | 2.35E-08 | 3.21E-08 |
|  | Polluted Soil + Pawpaw Compost | 0.0085 | 3.42E-08 | 1.19E-08 | 1.25E-08 | 5.90E-08 |
|  | Polluted Soil + Pawpaw Compost + Plant | 0.0085 | 2.81E-08 | 3.59E-09 | 2.20E-08 | 3.41E-08 |

Table S10: Cancer Risk of heavy metals exposed to through ingestion by children

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  | Mean | Std. Deviation | Minimum | Maximum |
| Ni | Polluted Soil | 0.84 | 8.31E-04 | 9.10E-05 | 7.56E-04 | 9.32E-04 |
|  | Polluted Soil + Moringa Compost | 0.84 | 6.26E-04 | 7.56E-05 | 5.19E-04 | 8.12E-04 |
|  | Polluted Soil + Moringa Compost + Plant | 0.84 | 5.09E-04 | 5.96E-05 | 4.38E-04 | 6.65E-04 |
|  | Polluted Soil + Neem Compost | 0.84 | 5.27E-04 | 7.13E-05 | 4.37E-04 | 6.70E-04 |
|  | Polluted Soil + Neem Compost + Plant | 0.84 | 4.47E-04 | 7.61E-05 | 3.07E-04 | 5.90E-04 |
|  | Polluted Soil + Pawpaw Compost | 0.84 | 4.24E-04 | 7.67E-05 | 3.30E-04 | 5.59E-04 |
|  | Polluted Soil + Pawpaw Compost + Plant | 0.84 | 3.24E-04 | 3.62E-05 | 2.79E-04 | 3.73E-04 |
| Cd | Polluted Soil | 6.1 | 4.36E-03 | 1.08E-03 | 3.34E-03 | 5.49E-03 |
|  | Polluted Soil + Moringa Compost | 6.1 | 3.98E-03 | 2.13E-04 | 3.58E-03 | 4.31E-03 |
|  | Polluted Soil + Moringa Compost + Plant | 6.1 | 3.68E-03 | 1.82E-04 | 3.42E-03 | 3.97E-03 |
|  | Polluted Soil + Neem Compost | 6.1 | 3.12E-03 | 2.05E-04 | 2.82E-03 | 3.38E-03 |
|  | Polluted Soil + Neem Compost + Plant | 6.1 | 2.47E-03 | 2.01E-04 | 2.03E-03 | 2.76E-03 |
|  | Polluted Soil + Pawpaw Compost | 6.1 | 2.64E-03 | 1.93E-04 | 2.36E-03 | 3.00E-03 |
|  | Polluted Soil + Pawpaw Compost + Plant | 6.1 | 2.25E-03 | 1.93E-04 | 2.01E-03 | 2.63E-03 |
| Pb | Polluted Soil | 0.0085 | 1.32E-04 | 4.58E-05 | 8.57E-05 | 1.77E-04 |
|  | Polluted Soil + Moringa Compost | 0.0085 | 5.78E-05 | 1.88E-05 | 3.74E-05 | 9.62E-05 |
|  | Polluted Soil + Moringa Compost + Plant | 0.0085 | 4.32E-05 | 9.11E-06 | 2.45E-05 | 5.29E-05 |
|  | Polluted Soil + Neem Compost | 0.0085 | 5.68E-05 | 1.58E-05 | 3.65E-05 | 8.93E-05 |
|  | Polluted Soil + Neem Compost + Plant | 0.0085 | 4.13E-05 | 3.93E-06 | 3.73E-05 | 5.09E-05 |
|  | Polluted Soil + Pawpaw Compost | 0.0085 | 5.42E-05 | 1.89E-05 | 1.98E-05 | 9.36E-05 |
|  | Polluted Soil + Pawpaw Compost + Plant | 0.0085 | 4.45E-05 | 5.69E-06 | 3.49E-05 | 5.41E-05 |

Table S11: Cancer Risk of heavy metals exposed to through inhalation by children

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  | Mean | Std. Deviation | Minimum | Maximum |
| Ni | Polluted Soil | 0.84 | 1.57E-08 | 1.72E-09 | 1.43E-08 | 1.76E-08 |
|  | Polluted Soil + Moringa Compost | 0.84 | 1.18E-08 | 1.43E-09 | 9.83E-09 | 1.54E-08 |
|  | Polluted Soil + Moringa Compost + Plant | 0.84 | 9.65E-09 | 1.13E-09 | 8.29E-09 | 1.26E-08 |
|  | Polluted Soil + Neem Compost | 0.84 | 9.98E-09 | 1.35E-09 | 8.27E-09 | 1.27E-08 |
|  | Polluted Soil + Neem Compost + Plant | 0.84 | 8.47E-09 | 1.44E-09 | 5.81E-09 | 1.12E-08 |
|  | Polluted Soil + Pawpaw Compost | 0.84 | 8.03E-09 | 1.45E-09 | 6.25E-09 | 1.06E-08 |
|  | Polluted Soil + Pawpaw Compost + Plant | 0.84 | 6.14E-09 | 6.86E-10 | 5.28E-09 | 7.06E-09 |
| Cd | Polluted Soil | 6.1 | 8.26E-08 | 2.05E-08 | 6.32E-08 | 1.04E-07 |
|  | Polluted Soil + Moringa Compost | 6.1 | 7.53E-08 | 4.03E-09 | 6.78E-08 | 8.17E-08 |
|  | Polluted Soil + Moringa Compost + Plant | 6.1 | 6.96E-08 | 3.44E-09 | 6.47E-08 | 7.51E-08 |
|  | Polluted Soil + Neem Compost | 6.1 | 5.90E-08 | 3.88E-09 | 5.35E-08 | 6.41E-08 |
|  | Polluted Soil + Neem Compost + Plant | 6.1 | 4.69E-08 | 3.81E-09 | 3.84E-08 | 5.24E-08 |
|  | Polluted Soil + Pawpaw Compost | 6.1 | 5.00E-08 | 3.66E-09 | 4.47E-08 | 5.67E-08 |
|  | Polluted Soil + Pawpaw Compost + Plant | 6.1 | 4.27E-08 | 3.66E-09 | 3.81E-08 | 4.98E-08 |
| Pb | Polluted Soil | 0.0085 | 2.50E-09 | 8.67E-10 | 1.62E-09 | 3.36E-09 |
|  | Polluted Soil + Moringa Compost | 0.0085 | 1.09E-09 | 3.57E-10 | 7.09E-10 | 1.82E-09 |
|  | Polluted Soil + Moringa Compost + Plant | 0.0085 | 8.19E-10 | 1.73E-10 | 4.64E-10 | 1.00E-09 |
|  | Polluted Soil + Neem Compost | 0.0085 | 1.08E-09 | 2.99E-10 | 6.91E-10 | 1.69E-09 |
|  | Polluted Soil + Neem Compost + Plant | 0.0085 | 7.81E-10 | 7.45E-11 | 7.07E-10 | 9.64E-10 |
|  | Polluted Soil + Pawpaw Compost | 0.0085 | 1.03E-09 | 3.59E-10 | 3.75E-10 | 1.77E-09 |
|  | Polluted Soil + Pawpaw Compost + Plant | 0.0085 | 8.43E-10 | 1.08E-10 | 6.61E-10 | 1.03E-09 |

Table S12: Cancer Risk of heavy metals exposed to through dermal contact by children

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  | Mean | Std. Deviation | Minimum | Maximum |
| Ni | Polluted Soil | 0.84 | 5.23E-07 | 5.74E-08 | 4.76E-07 | 5.87E-07 |
|  | Polluted Soil + Moringa Compost | 0.84 | 3.94E-07 | 4.76E-08 | 3.27E-07 | 5.11E-07 |
|  | Polluted Soil + Moringa Compost + Plant | 0.84 | 3.21E-07 | 3.76E-08 | 2.76E-07 | 4.19E-07 |
|  | Polluted Soil + Neem Compost | 0.84 | 3.32E-07 | 4.49E-08 | 2.75E-07 | 4.22E-07 |
|  | Polluted Soil + Neem Compost + Plant | 0.84 | 2.82E-07 | 4.80E-08 | 1.93E-07 | 3.72E-07 |
|  | Polluted Soil + Pawpaw Compost | 0.84 | 2.67E-07 | 4.83E-08 | 2.08E-07 | 3.52E-07 |
|  | Polluted Soil + Pawpaw Compost + Plant | 0.84 | 2.04E-07 | 2.28E-08 | 1.76E-07 | 2.35E-07 |
| Cd | Polluted Soil | 6.1 | 2.75E-06 | 6.82E-07 | 2.10E-06 | 3.46E-06 |
|  | Polluted Soil + Moringa Compost | 6.1 | 2.51E-06 | 1.34E-07 | 2.26E-06 | 2.72E-06 |
|  | Polluted Soil + Moringa Compost + Plant | 6.1 | 2.32E-06 | 1.14E-07 | 2.15E-06 | 2.50E-06 |
|  | Polluted Soil + Neem Compost | 6.1 | 1.96E-06 | 1.29E-07 | 1.78E-06 | 2.13E-06 |
|  | Polluted Soil + Neem Compost + Plant | 6.1 | 1.56E-06 | 1.27E-07 | 1.28E-06 | 1.74E-06 |
|  | Polluted Soil + Pawpaw Compost | 6.1 | 1.66E-06 | 1.22E-07 | 1.49E-06 | 1.89E-06 |
|  | Polluted Soil + Pawpaw Compost + Plant | 6.1 | 1.42E-06 | 1.22E-07 | 1.27E-06 | 1.66E-06 |
| Pb | Polluted Soil | 0.0085 | 8.32E-08 | 2.89E-08 | 5.40E-08 | 1.12E-07 |
|  | Polluted Soil + Moringa Compost | 0.0085 | 3.64E-08 | 1.19E-08 | 2.36E-08 | 6.06E-08 |
|  | Polluted Soil + Moringa Compost + Plant | 0.0085 | 2.72E-08 | 5.74E-09 | 1.54E-08 | 3.33E-08 |
|  | Polluted Soil + Neem Compost | 0.0085 | 3.58E-08 | 9.94E-09 | 2.30E-08 | 5.63E-08 |
|  | Polluted Soil + Neem Compost + Plant | 0.0085 | 2.60E-08 | 2.48E-09 | 2.35E-08 | 3.21E-08 |
|  | Polluted Soil + Pawpaw Compost | 0.0085 | 3.42E-08 | 1.19E-08 | 1.25E-08 | 5.90E-08 |
|  | Polluted Soil + Pawpaw Compost + Plant | 0.0085 | 2.81E-08 | 3.59E-09 | 2.20E-08 | 3.41E-08 |