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| Title | Environmental impact assessment of Egyptian Damietta governorate soils contamination with cadmium | | |
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| Abstract |  |
| Soil parental materials and anthropogenic activities are the sources of increasing Cd in soils and enrichment in edible parts of plants and creating hazards to animals and human. Thus, it is an important issue to estimate the levels of Cd in soils; straw and grains of rice and wheat plants grown in the soils contaminate with Cd and evaluates human health risk. In surface soil, total Cd (899±497 µg kg-1) and DTPA extractable Cd (16.41±13.83 µg kg-1) slightly higher by 1.02±0.20 and 1.31±0.45 folds than the subsurface layers, respectively. DTPA extractable Cd concentration is significantly increased linearly with increasing total soil Cd (r = 0.90). Positive significant correlation was found between soils DTPA extractable Cd and soil OM content (r = 0.95), while significant negative correlation for both CaCO3 content (r = -0.92) and pH (r = -0.94). In rice Cd concentrations of straw (374±156 µg kg-1) and grains (35±16 µg kg-1) are significantly correlated with total soil Cd (r = 0.89, r = 0.86) and DTPA extractable Cd (r = 0.84, r = 0.74), respectively. Whereas, rice grains Cd is increased with increasing straw Cd (r = 0.98). Wheat Cd concentrations of straw (194±71 µg kg-1) and grains (18±13 µg kg-1) are significantly correlated with total soil Cd (r = 0.90, r = 0.96) and DTPA extractable Cd (r = 0.91, r = 0.95), respectively. Wheat grains Cd is increased with increasing straw Cd (r = 0.95). The Cd Transfer factors (TF) as an average is higher in rice grains (0.04±0.014) than wheat grains (0.021±0.016). However, Cd concentrations in the wheat and rice grains are lower than the both EU and WHO/FAO permissible limits (0.24 mg kg-1 and 0.4 mg kg-1 dry wt., respectively) and so far no potential human health risk is concluded yet. | |

**Please specify which Sustainable Development Goal (SDG) (s) falls under your research:**

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| Goal 1 | No Poverty | Goal 2 | Zero Hunger |
| **Goal 3** | **Good Health and Well-Being** | Goal 4 | Quality Education |
| Goal 5 | Gender Equality | Goal 6 | Clean Water and Sanitation |
| Goal 7 | Affordable and Clean Energy | Goal 8 | Decent Work and Economic Growth |
| Goal 9 | Industry, Innovation and Infrastructure | Goal 10 | Reduced Inequalities |
| Goal 11 | Sustainable Cities and Communities | Goal 12 | Responsible Consumption and Production |
| Goal 13 | Climate Action | Goal 14 | Life below Water |
| Goal 15 | Life on Land | Goal 16 | Peace, Justice and Strong Institutions |
| Goal 17 | Partnerships for the Goals |  |  |