**Supplementary Materials**

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**Assessment of Adsorption and Removal Efficacy of *Spirulina* Powder for Strontium and Thallium**

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**1. Effect of *Spirulina* powder on adsorption of cobalt**

The percentage adsorption of cobalt on *Spirulina* was significantly high (p<0.001) in water compared to SGF. The percentage of cobalt adsorption on *Spirulina* was decreased with increasing the amount of cobalt (10-100 mg L-1) in water (32.358±0.645–19.712±0.672) and SGF (21.398±1.305–7.053±0.403) (Figure S1).



**Figure S1:** Percentage adsorption of different concentration of cobalt (10-100 mg L-1) on *Spirulina* (10 g L-1) in water and simulated gastric fluid. Values are expressed in Mean ± S.E.M. (n=3); Significant values are \**p*< 0.001 when compared to SGF. **(**SGF; simulated gastric fluid).

**2. Effect of *Spirulina* powder on adsorption of strontium**

The percentage adsorption of strontium on *Spirulina* in water and simulated physiological solutions (SGF and SIF) is illustrated in figure S2. A significant increase (p<0.001) in the adsorption of strontium was observed at low concentration of strontium (10 mg L-1) in water and SIF as compared to SGF. The adsorption of strontium (10-100 mg L-1) on *Spirulina* was significantly high (p<0.05-p<0.001) in SIF compared to water and SGF. The percentage of strontium adsorption on *Spirulina* was decreased with increasing the amount of strontium (10-100 mg L-1) in water (29.429±4.077–5.879±2.032) and SGF (15.201±2.020–4.379±0.477). In SIF the percentage adsorption of strontium on *Spirulina* was almost same at all concentration (26.577±2.550–24.192±0.232) (Figure S2).



**Figure S2:** Percentage adsorption of different concentration of strontium (10-100 mg L-1) on *Spirulina* (10 g L-1) in water and simulated physiological solutions (SGF and SIF). Values are expressed in Mean ± S.E.M. (n=3); Significant values are #*p*<0.01 and \**p*< 0.001 when compared to SGF, and c*p*< 0.001 when compared to water. **(**SGF; simulated gastric fluid, SIF; simulated intestinal fluid).

**3. Effect of *Spirulina* powder on adsorption of barium**

Adsorption of barium on *Spirulina* in water and simulated physiological solution (SGF) is illustrated in Figure S3. A significant increase (p<0.05) in the percent adsorption of barium was observed at lower concentration of barium (10 mg L-1) in SGF only when compared to water. Whereas, insignificant differences were observe at remaining concentration of barium in water and SGF. The percentage adsorption of barium on *Spirulina* was decreased with increasing the amount of barium (10-100 mg L-1) in water (12.490±0.0–2.858±0.556) and SGF (18.070±3.095–5.622±0.368).

**4. Effect of *Spirulina* powder on adsorption of cesium**

The percentage adsorption of cesium on *Spirulina* in water and simulated physiological solutions (SGF and SIF) is illustrated in Figure S4. The percentage adsorption of cesium was high at lower concentration of cesium, which decreased with increasing the concentration in water, SGF and SIF. No significant differences were observed between the percentage cesium adsorption on *Spirulina* in water, SGF and SIF. The percentage of cesium adsorption on *Spirulina* (10 g L-1) was decreased with increasing the amount of cesium (10-100 mg L-1) in water (6.249±0.0–4.483±0.196), SGF (5.125±0.722–2.776±0.260) and SIF (5.665±1.583–2.289±0.309) (Figure S4).



**Figure S3:** Percentage adsorption of different concentration of barium (10-100 mg L-1) on *Spirulina* (10 g L-1) in water and simulated gastric fluid. Values are expressed in Mean ± S.E.M. (n=3); Significant values is @*p*< 0.05, when compared to water. **(**SGF; simulated gastric fluid).



**Figure S4:** Percentage adsorption of different concentration of cesium (10-100 mg L-1) on *Spirulina* (10 g L-1) in water and simulated physiological solutions (SGF and SIF). Values are expressed in Mean ± S.E.M. (n=3); no significant differences were observed between water, SGF and SIF. **(**SGF; simulated gastric fluid, SIF; simulated intestinal fluid).

**5. Effect of *Spirulina* powder on adsorption of thallium**

The percentage adsorption of strontium on *Spirulina* in water and simulated physiological solutions (SGF and SIF) is illustrated in Figure S5. The percentage adsorption of thallium was high at lower concentration of thallium, which decreased with increasing the concentration in water, SGF and SIF. *Spirulina* showed significant increase in percentage adsorption of thallium in SGF (p<0.001) when compared to water and SIF. The percentage adsorption of thallium at low concentration (10 mg L-1) on *Spirulina* was significantly high (p<0.05) in water as compared to SIF. The percentage of thallium adsorption on *Spirulina* (10 g L-1) was determined in water (19.061±1.905-4.775±0.009), SGF (32.673±2.509-21.426±0.258) and SIF (14.778±0.507-7.21±0.143).



**Figure S5:** Percentage adsorption of different concentration of thallium (10-100 mg L-1) on *Spirulina* (10 g L-1) in water and simulated physiological solutions (SGF and SIF).Values are expressed in Mean ± S.E.M. (n=3). Significant values are @*p*< 0.05 and \**p*< 0.001 when compared to SIF, and c*p*< 0.001 when compared to water. **(**SGF; simulated gastric fluid, SIF; simulated intestinal fluid).