



**SDI Review Form 1.6**

Journal Name:	<a href="#">British Journal of Pharmaceutical Research</a>
Manuscript Number:	<b>Ms_BJPR_28521</b>
Title of the Manuscript:	<b>Batch Equilibrium, Kinetics and Thermodynamics Study of Sulfamethoxazole antibiotics onto Azolla Filiculoides as a Novel Biosorbent</b>
Type of the Article	

**General guideline for Peer Review process:**

This journal's peer review policy states that **NO** manuscript should be rejected only on the basis of '**lack of Novelty**', provided the manuscript is scientifically robust and technically sound.

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**PART 1: Review Comments**

	Reviewer's comment	Author's comment (if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)
<b>Compulsory</b> REVISION comments	<p>This manuscript deals with the adsorption of a pharmaceutical compound (sulfamethoxazole) on a biosorbent (Azolla filiculoides). Some interesting experimental results were obtained, but they are not properly presented. The manuscript has weakness; some weakness are outlined below.</p> <p>Page 3, Line 98: The characterization of the biosorbent is not properly presented. Elemental analysis, point of zero charge, and leaching tests should be presented.</p> <p>Page 3 – Results and discussion? For adsorption in liquid phase, the effect of pH should be explored and discussed. How is SMZ adsorbed? Physically? Chemical adsorption? Electrostatic interactions?</p> <p>Page 3 – Line 107. The authors have not presented the kinetics of SMZ adsorption at different agitation speed. In fact, Figure 2 shows the concentration of SMZ after 90min contact at different agitation speed. As shown in Figure 3 and 4, after contacting for 90 minutes, the SMZ equilibrium concentration is achieved. So, how do the authors explain that the equilibrium concentration of SMZ on Azolla decreases as the agitation speed increases?</p> <p>Page 4, Line 116-117: There is no sense on the first</p>	<p>We are thankful because of review our manuscript.</p> <p>point of zero charge was added.</p> <p>Pharameter pH was added.</p> <p>Fig 3 and 4 Been done at agitation speed = 300 rpm (optimum agitation speed). but fig 2 done at speed 50 to 400 rpm and increases agitation speed leading to Increase the percentage absorbed. This may be due to the fact that proper contact between the SMZ and active site is developed by increasing the agitation speed. Thus increase of the agitation speed improves the diffusion of SMZ towards the surface of the adsorbents.</p>



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	<p>phrase ("During adsorption processes, the rate of mass transfer from the liquid to the solid phase is influenced by contact time between the two phases). A detailed mechanism is required. There is several mechanism equations to describe the mass transfer (external diffusion, internal diffusion, pore diffusion, etc). The effect of contact time should be discussed according some of them.</p> <p>Page 4 – Line 136. How do the authors explain the increase of the amount of SMZ adsorbed on the equilibrium as the temperature increases, since the equilibrium adsorption is described according to the Langmuir monolayer adsorption?</p> <p>Page 8 – Table 2. How were the values in Table 2 evaluated? I noticed that <math>q_{max}</math> values in Table 2 is quite lower than the values of <math>q_e</math> (mg/g) in Figure 4.</p> <p>Page 10, Table 3 – How do the authors explain the increase of pseudo-second order kinetic constant as the initial SMZ concentration increases?</p>	<p>several mechanism equations to describe the mass transfer (external diffusion, internal diffusion, pore diffusion, etc) was added.</p> <p>Increase in temperature causes an increase in the mobility of SMZ and the kinetic energies of SMZ increased, leading in turn to an increase in the adsorption of SMZ onto AF biomass.</p> <p>In condition optimum at fig 4 (revise paper fig 6) shows that the adsorption capacity at the 100 mg/L concentration was 34.52 mg/g. it should be noted that these experiments was conducted 30 C. Also the isotherms experiments which is performed at concentration 100 mg/L indicate that the maximum adsorption capacity (<math>q_e</math>) mg/g is observed to be 32.18 mg/g. that is represented in table 2 and <math>q_{max}</math> for langmuir isotherms at temp 30 C. this shows that there was a good agreement between <math>q_e</math> experimental and <math>q_e</math> calculated values.</p> <p>pseudo-second order kinetic constant decrease with increases initial SMZ concentration and revised.</p>
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<b>Minor</b> REVISION comments	<p>Page 1, Line 35-36: Why adsorption is considered one of the most promising technology? Cost? Efficiency? Safety? The cited references (17 and 18) seem not suitable to state anything about these aspects.</p> <p>Page 2, Line 43: What are the negative effects of Azolla to aquatic ecology?</p>	<p>Adsorbent dispersed in the entire Anzali wetland. Azolla is a floating aquatic fern which it growing rapidly in stagnant waters and wetlands and cover the surface of water. Therefore, it is a risk for aquatic life and in the Anzali wetlands are seeking a method to eliminate this plant. So Azolla is so cheap And is government support for collect azolla for wetland.</p>
<b>Optional/General</b> comments		