Abstract
Dry biomass of Spirulina platensis was used as biosorbent for copper removal from water. Because of the limited uptake capability shown when used in this condition, this material was subject to pre-hydration for 24 h before use. The results of these tests demonstrate that biomass pre-hydration allowed for an increase in metal removal yield from 0.81 to 0.91. Additional tests were also performed at variable starting concentrations either of biomass or copper with the aim of optimizing the adsorption process of this metal. Copper was almost entirely removed at the lowest metal concentration (Cu₀ = 0.1 g/L) when using relatively high starting biomass levels (X₀ ≥ 2.0 g/L), whereas the removal yield appreciably decreased with increasing Cu₀ and decreasing X₀, respectively. These results could be useful to design a process for real-scale copper removal from spent lees from distilleries, before sending it to conventional wastewater treatment.

Keywords
Copper, heavy metal removal, biosorption, Spirulina platensis, dry biomass