**Title**

**CELLULOSE BASED HYDROGELS EXTRACTED FROM BANANA STEMS FOR BIOMEDICAL APPPLICATIONS**

**Abstract structure**

Hydrogels are one of the biomaterials that have wide areas of application because they can be used in everything from the pharmaceutical industry to the oil industry. **Objective:** The objective of this project is to use the waste generated by the banana industry to obtain cellulose and generate hydrogels. **Methods:** The cellulose was obtained from the trunks of banana bunches, which were cut, dried, and crushed. The samples were then subjected to an alkalinization and bleaching process with NaOH and H2O2 for 6 cycles and 4 for each process, respectively. Between cycles, the sample was filtered through a nylon mesh. In addition, the sample was washed at the end to achieve a pH equal to or less than 7. Once the sample was washed, it was dried at room temperature for 3 days. For the characterization, the FTIR method was used to determine that the samples obtained were cellulose. Next, the possibility of manufacturing the hydrogel with different proportions of gelatin, cellulose, and citric acid was evaluated, which will be used to generate crosslinking of the hydrogel's cellulose and focus it on biomedical applications. **Results:** As a result of this study, it was found that the yield of cellulose was very low, which could be due to the filtration method used in each cycle. However, the sample evaluated in the FTIR shows a spectrum of cellulose. Also, the materials chosen for the preparation of the hydrogel are favorable for manufacturing and for its focus on biomedical applications. **Main conclusions:** In conclusion, banana plantation residues such as bunch stems have the potential to be sources of cellulose that can be used in the production of hydrogels with biomedical applications.

**Key words:**

Biomaterials, hydrogel, cellulose.