Silver nanoparticles containing polysaccharide obtained from an agricultural by-product: corncob.

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INTRODUCTION: Several studies showed that synthesis of nanoparticles promote an increase in the activity of the compound used in their synthesis.The corncob is an agricultural by-product with low value, and its waste achieved 180 million tons in 2014. This material is source of an antiproliferative and antioxidant polysaccharide named xylan (XCC) **OBJECTIVE:** In order to improve the xylan activities, our main was synthesize silver nanoparticles (SN) using XCC and evaluate XCC and SN activities. **MATERIALS AND METHODS:** The XCC was extracted from corncob obtained using a method that combines an alkaline medium with ultrasound. Silver nitrate and XCC were stirring together (24h) in order to obtain SN. This synthesis was monitored with UV-visible spectrometer. Dynamic light scattering (DLS) and Atomic force microscopy were used to determine the SN size and shape. The content of sugars, proteins and phenolic compounds was determinate by chemical analyzes. The antiproliferative activity was performed by MTT assay. **DISCUSSION AND RESULTS:** The SN size was 101.4 ± 2.72 nm and remained stable for 10 months. After chemical dosages, it was found 28.6 ± 2.5% sugar and low contamination by proteins (0.11 ± 0.048%) and phenolic compounds (0.015 ± 0.005%). SN (0.001 mg / ml) decreased the viability (50%) of the promastigote form of *Leishmania amazonenses*, without cytotoxicity against normal fibroblast cells (3T3), while the XCC had no effect on promastigotes of *L. amazonenses*. **CONCLUSION:** The XCC as a silver nanoparticle compound had its antiproliferative activity improved. Further studies in vitro and in vivo experiments are needed and are already in progress in order to show whether other XCC activities were also improved.

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