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# **Starch/silver nanocomposite: Effect of thermal treatment temperature on the morphology, oxygen and water transport properties.**

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## **Abstract**

The present work reports a strategy involving the preparation of nanostructured starch based film containing silver nanoparticles (AgNPs) using a completely green chemistry process. The nanocomposite films were prepared by solution cast process. The AgNPs were *in situ* generated inside the polymer film by thermal treatment at different temperatures (25, 40 and 85 °C). The influence of the presence and the amount of reducing agent (glucose) were also investigated. For all nanocomposite films, the AgNPs were spherical with a diameter less than 15 nm. Contrary to the presence of glucose, thermal treatment condition was a key factor for the AgNPs structure. Crystalline AgNPs were obtained only after thermal treatment at 85 °C. Improvements of water and oxygen barrier properties near to one decade were observed in

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