**Cork shavings as activated carbon for cork cooking wastewater treatment**

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Cork is a material with diverse applications among different areas. It is obtained from the bark of the cork oak tree “*Quercus suber* L“ and shows very distinctive characteristics as lightness, impermeability, abrasion resistance, elasticity and others. In Portugal, because of the good climatic conditions for its development, the cork oak is the second predominant forestry specie. Currently, the cork oak forests in Portugal occupy an area of 736 thousand hectares, representing 34% of the total cork oak area the world. Alentejo is the most common region for the plantation and development of this tree [1,2].

Cork is mainly used in wine industry but new functions have been developped: footwear, packing and textile industries, and civil construction. Nowadays, the wine industry uses 68,4% of cork production followed by civil construction sector with 24,5% (including floorings, insulation, coatings, decoration and others) [2,3].

Cork is a natural, recyclable and chemically inert product [1]. However, during its transformation process, solid waste and wastewater are produced which may affect negatively the environment, if not suitably treated. Two important and problematic wastes are the cork cooking waste water and cork shavings. The cooking process is used to stabilize and increase the cork thickness, to allow softening and elasticity and extract water soluble substances. During the cooking process a big amount of water is used with a high pollutant charge. Normally, this wastewater has a preliminary treatment before discharge in aquatic environment.

Cork shavings is a solid waste produced in the cork stopper manufacturing process. This solid waste may be valorized by pyrolisis and activation to obtain an activated carbon.

The aim of our study was to produce an activated carbon from cork shavings to be used in the final treatment, by adsorption, of membrane ultrafiltrated cooking wastewater in order to try its recycling.

The carbon was produced through pyrolysis process at 800ºC, and then impregnated with potassium hydroxide (KOH), activated at 800ºC, and finally neutralized. The activated carbon obtained has the following characteristics: 99,34% of dry matter, 67,5% of mineral matter, 32,48% of organic matter, and a surface area (evaluated by the iodine number) of 893,6 m2/g.

**References:**

[1] APCOR - Associação Portuguesa da Cortiça, “http://www.apcor.pt“.

[2] Gonçalves, J., Amaro, A., et al. (2005). A Utilização e a Valorização da Propriedade Industrial no Setor da Cortiça, Volume III, Instituto Nacional da Propriedade Industrial, Lisbon.

[3] APCOR (2014), Anuário Apcor 2014.