

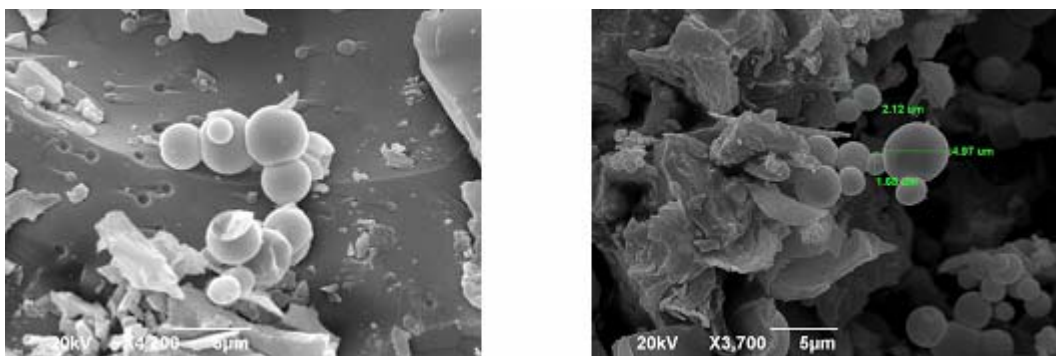
# Carbon Microspheres from Agricultural Wastes

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In this study, the synthesis of carbon microspheres were investigated via direct pyrolysis of agrofood wastes from restaurants. Potato peels (PP) were used as precursors and mineral oil as reagent for the preparation of carbon spheres. Briefly, the PP were washed with distilled water in order to remove dust and impurities and thereafter carbonized at 500°C. Then, the yielded amorphous carbon from PP was impregnated with H<sub>3</sub>PO<sub>4</sub> under stirring for 24 h. In addition, the obtained activated carbon was dried in an oven furnace in order to evaporate the larger amount of H<sub>3</sub>PO<sub>4</sub> and then oven carbonized in a porcelain crucible for the second activation process at high temperature. Thereafter, the obtained activated carbon was grounded in a mortar and sieved with a 400 mesh screen (37 μm) to obtain the powder form of activated carbon from PP. In addition, the process contains the closure of powder form activated carbon in a 316 stainless steel tube with 3% mineral oil. The closure process of powder form activated carbon and mineral oil was achieved by welding the top and bottom of 316 stainless steel tube. Finally, the process contains the pyrolysis of 316 stainless steel tube in an oven where only at 1100°C was achieved the decomposition of activated carbon in carbon microspheres as it is clearly confirmed with SEM microscopy (Fig. 1). The initial sample characterization was achieved with SEMEDX, XRD, BET and FTIR.



**Figure 1.** SEM images after decomposition of activated carbon and transformation in carbon microspheres at 1100°C

**Acknowledgements:** This research was co-financed by the project “Development of NAnotechnology-enabled “next-generation” MEmbranes and their applications in Low-Energy, zero liquid discharge Desalination membrane systems”/NAMED, T2ΔΓΕ-0597.