

Biosynthesis (green) is an important method for preparing nanoparticles because it is environmentally friendly and pollution-free. It is also considered a safe, non-toxic and readily available method. This study includes the preparation of TiO₂ nanoparticles from titanium tetra-isopropoxide (TTIP), which is a source of titanium and extracts of the following plant leaves: Citrullus colocynthis, Cyperus papyrus, Ricinus communis, Hibiscus Sabdariffa, and Moringa Oleifera. Hibiscus Sabdariffa, Cyperus papyrus, Moringa Oleifera were obtained from the local markets in the city of Nasiriyah, while the leaves of the Citrullus colocynthis plant was collected from the desert areas north of the city of Nasiriyah, and the leaves of Ricinus communis plant, they were obtained from the orchards, Suq Al-Shuyoukh City, south of the city of Nasiriyah. diagnosed by various analytical methods, including scanning electron microscopy (SEM), energy dispersive radiation (EDX) spectrum, X-ray diffraction (XRD), FT-IR spectroscopy and UV-VIS .spectroscopy

.This study was carried out at the Faculty of Science - Dhi Qar University

The results of the SEM study indicated that the size of the prepared crystals within the nanoscale, i.e. less than 100 nm and spherical in shape, clumpy, where the size of the smallest prepared crystal was nm¹³ from the red tea plant extract with a weight of 5 g, while the largest crystal was 63 nm of the .maple extract (plant Papyrus) weighs 5 grams

The presence of titanium and oxygen was confirmed in different proportions in the samples through the EDX spectrum, and the highest percentage of moringa plant extract was 10 g and the lowest percentage of bitter melon extract was 5 g, while the XRD technology showed the presence of two phases of titanium oxide particles, They, rutile and anatase. Also, the .ultraviolet spectrum has bands between 200-400 nm

The results of the decomposition of the Congo Red dye in the presence of sunlight showed that the amount of dissociation depends on the size of the titanium oxide nanoparticles, which differ according to the size of the .particles prepared from plant extracts