

The nanotechnology has become the subject of attention due to its vast applications and advantages in various scientific regimes. This nanotechnology has been the foundation of investment in science regarding different fields like development of cosmetics formulations. In this research, nanoparticles of TiO_2 synthesized by using the leaf extract of *Moringa oleifera* i.e. green synthesis and Glucose oxidase enzyme (GOx) was immobilized with TiO_2 nanoparticles. Effective enzyme loading was observed due to high surface area to volume ratio of titanium dioxide nanoparticles. The activity of glucose oxidase enzyme was enhanced after immobilization of enzyme. From UV-visible spectroscopic analysis, it was observed that TiO_2 – NPs show maximum absorbance at 360 nm. The average size of TiO_2 was observed 44 nm by plotting histogram. To observe the structure of immobilized GOx, FTIR technique was used. Scanning electron microscope showed the structure of bi-conjugate. Furthermore, UV-visible spectroscopic analysis showed that the immobilized enzyme's activity was increased twice as compared to the free enzyme. Sunscreens are generally used to give protection from harmful UV-radiations of sun. The TiO_2 NPs are generally known to filter particular UV radiations thus, provide shielding effect and also help in effective immobilization of GOx which in turns remarkably enhances the enzyme activity. Hence, the effectiveness of sunscreen is multiplied ten times if it is incorporated with immobilized GOx.