

## Green Synthesis of Iron Nanoparticles using *Bridelia Retusa* Leaves Extract

K.G.R. Samarawickrama<sup>1</sup>, U.G.S. Wijayapala<sup>2</sup>, N.D. Wanasekara<sup>3</sup>, C.A.N. Fernando<sup>4</sup>

---

The interest in synthesizing nanoparticles in an easy and environmentally friendly way has been increasing in recent years. The physical and chemical methods are conventionally used for the synthesis of nanoparticles. However, due to the limitations of these methods, the focus of research has been recently shifted towards the development of clean and eco-friendly synthesis protocols. The green synthesis of iron nanoparticles has been achieved using environmentally acceptable plant extract. It was observed that *Bridelia retusa* leaf extract can reduce Fe<sup>2+</sup> into Iron nanoparticles at room temperature. This study aims to synthesize iron nanoparticles using *Bridelia retusa* extract environmentally and sustainably. The synthesized Iron nanoparticles were characterized using Scanning Electron Microscope (SEM), Fourier Transform Infrared (FTIR) analysis, and UV-Visible spectroscopy (UV-Vis). This study shows that the Iron nanoparticles can be synthesized using *Bridelia retusa* leaf extract as a reducing agent.

**Keywords:** Environmentally friendly, Green synthesis, Iron nanoparticles, *Bridelia retusa*, Room temperature.

**Acknowledgments:** The authors are thankful to the University of Moratuwa for providing financial support under the research Grant No. SRC/LT/2021/13 to make this abstract published.

<sup>1</sup> Department of Textile & Apparel Engineering, Faculty of Engineering, University of Moratuwa, Sri Lanka, [rumesht@gmail.com](mailto:rumesht@gmail.com)

<sup>2</sup> Department of Textile & Apparel Engineering, Faculty of Engineering, University of Moratuwa, Sri Lanka

<sup>3</sup> Department of Textile & Apparel Engineering, Faculty of Engineering, University of Moratuwa, Sri Lanka

<sup>4</sup> Department of Nanoscience Technology, Faculty of Technology, Wayamba University of Sri Lanka, Kuliyapitiy, Sri Lanka.