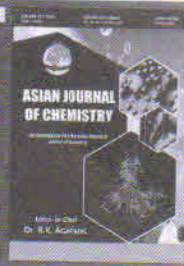


Asian Journal of Chemistry:

Vol. 38, No. 1 (2026), 209-214

# ASIAN JOURNAL OF CHEMISTRY

<https://doi.org/10.14233/ajchem.2026.34774>



## Synthesis of BaTiO<sub>3</sub>/Graphene Oxide/Polyvinylidene Fluoride Nanocomposite Film based Nanogenerator for Energy Harvesting Application

YADAGIRI RAO YASALA<sup>1,\*</sup>, H. MALLESHA<sup>1,†</sup>, KAMMARI SURESH CHARY<sup>2,‡</sup> and Y. PRASHANTHI<sup>1,\*</sup>

<sup>†</sup>Department of Chemistry, Mahatma Gandhi University, Nalgonda-508001, India

<sup>‡</sup>Naval Material Research Laboratory, DRDO, Shil-Badlapur, Ambernath East, Thane District-421506, India

\*Corresponding author: E-mail: prashanthimgu1@gmail.com

Received: 27 August 2025

Accepted: 12 December 2025

Published online: 31 December 2025

AJC-22240

Piezoelectric based flexible sensors are very important in the field of the wearable electronics and self-powered sensor applications. Herein, the synthesis of barium titanate nanoparticles (BT NPs) with a diameter are in the range of approximately 70-200 nm via hydrothermal process is reported. The synthesized BT NPs and graphene oxide (GO) are dispersed in PVDF polymer matrix to fabricate the nanocomposite film. Flexible nanogenerator was developed using BT/GO/PVDF nanocomposite film and copper electrodes and packed in the epoxy polymer. Nanogenerator exhibited the output voltage ~1 V and ~0.34 μW power under repeated mechanical tapping. The robustness of developed nanogenerator was studied under 1000 cycle of continuous mechanical tapping.

**Keywords:** Barium titanate, Graphene oxide, Hydrothermal, Nanogenerator, Nanocomposite, Epoxy resin.