



SCHOLARLY PUBLICATIONS School of Civil Engineering KIIT Deemed to be University

Journal Name: Frontiers in Environmental Science

IF: 4.4

Title: Integrating climate projections and hydrological modeling for sustainable water management in a major indian peninsular basin

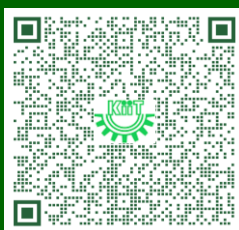
Author: Thakur A.; Nema A.K.; Mishra P.K.; Samal K.P.; Choudhary A.; Lodh A.; Thakur H.P.; Sonkar D.; Singh R.

Details: Volume-14, July 2026

Abstract: Agriculture and fisheries play vital roles in sustaining livelihoods, whereas they are frequently suffered by recurring floods in the Wainganga basin of the Indian Peninsula. The climate change and unsustainable practices have significantly affected these livelihoods. The present study examines changing climate impacts on hydrological mechanisms in the Wainganga basin, precisely Kumhari, Ramakona, and Ashti using Soil and Water Assessment Tool (SWAT). Before applying the SWAT model, it was calibrated (1996–2008) and validated (2009–2013) with warm-up period of 3 years (i.e., from 1993 to 1995) using observed data, projecting future streamflow with NEX-GDDP RCP 4.5 and RCP 8.5 scenarios. The outcomes reveal complex dynamic scenarios. It is projected that precipitation (3%–9%), surface runoff (23%–31%), and lateral flow (18%–29%) will increase in future, however, both evapotranspiration (ET) (16%–17%) and potential evapotranspiration (PET) (17%–18%) are expected to decline in compare to baseline period. This hydrological shift alters the localized water equilibrium and is modulated primarily by changes in relative humidity and wind velocity, while temperature and precipitation show upward trends. The findings of the present study contribute to the understanding of future water availability and management strategies in the face of climate variability and change.



URL: <https://www.frontiersin.org/journals/environmental-science/articles/10.3389/fenvs.2026.1835963/full>





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Journal Name: Next Nanotechnology

IF: 3.7

Title: Recent advances in green-synthesized nanoparticles: Mechanisms, environmental and pharmaceutical applications, challenges, and future perspectives

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Details: Volume-10, December 2026

Abstract: Nanotechnology has emerged as a promising field for developing sustainable materials with wide-ranging environmental and pharmaceutical applications. Among various approaches, green-synthesized nanoparticles (GSNPs) has gained significant attention as an eco-friendly, cost-effective, and bio-compatible alternative to physical and chemical synthesis methods. GSNPs utilize biological entities such as plant extracts, bacteria, fungi, algae, and biomolecules as reducing and stabilizing agents, eliminating the need for toxic chemicals. This review critically discusses recent development in the synthesis mechanisms, influencing factors, and characterization techniques of GSNPs. Special emphasis is given to the role of parameters such as pH, temperature, reaction time, extract concentration, and metal ion concentration in controlling NPs size, morphology, crystallinity, and stability. Furthermore, the review highlights major environmental applications including wastewater treatment, air pollution control, and soil remediation, where green NPs exhibit excellent adsorption, photocatalytic, and pollutants degradation properties. In addition, pharmaceutical applications such as drug delivery, antimicrobial activity, anticancer therapy, antioxidant, anti-inflammatory activity, and biosensing are comprehensively summarized. Despite remarkable advancements, challenges related to scalability, toxicity assessment, and long-term environmental impact remain critical. Overall, this review provides valuable insights into the recent advancement and future perspectives of GSNPs for sustainable environmental and biomedical technologies.



URL: <https://www.sciencedirect.com/science/article/pii/S2949829526002597?via%3Dihub>

