



## SCHOLARLY PUBLICATIONS

### School of Electrical Engineering

# KIIT Deemed to be University

**Journal Name:** Diabetes Research and Clinical Practice

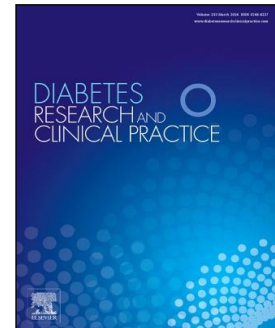
**IF:** 7.4

**Title:** Salivary extracellular vesicles and Raman spectroscopy in precision diagnostics of type 2 diabetes

**Author:** Dhal, A.; Lin, S.-J.; Pandey, A.; Liu, C.-H.; Liu, H.-Y.; Jena, T.; Jena, C.; Rath, D.; Peng, P.-W.; Chang, C.-J.; Chen, C.-I.; Pan, L.-C.; Yang, T.-S.

**Details:** Volume 233, March 2026

**Abstract:** Type 2 Diabetes (T2D) remains a major global health issue, driven by sedentary lifestyles and aging populations, emphasizing the urgent need for precise diagnostics that allow early detection and personalized monitoring. Traditional blood tests, including glucose and HbA1c measurements, offer limited temporal and molecular information. In contrast, saliva provides a non-invasive, easily accessible biofluid that reflects systemic metabolic changes. Its molecular components, especially extracellular vesicles (EVs), such as exosomes and microvesicles, contain proteins, lipids, and microRNAs directly associated with insulin resistance,  $\beta$ -cell dysfunction, and inflammation in T2D. Advances in Raman spectroscopy and surface-enhanced Raman scattering (SERS) now enable high-sensitivity, label-free molecular fingerprinting of salivary EVs, supporting multiplex detection of disease-related biomarkers. Combining Raman-based sensing with EV profiling introduces an innovative approach for non-invasive, precision diabetes diagnostics. This review explores the diagnostic importance of salivary EVs, recent developments in Raman/SERS-based biomolecular detection, and the clinical potential of integrating these technologies for early screening and therapy monitoring. Moreover, incorporating artificial intelligence (AI) for spectral analysis and developing portable Raman devices could facilitate real-time, saliva-based metabolic monitoring, advancing personalized, preventive, and patient-focused diabetes care.



**URL:** <https://www.sciencedirect.com/science/article/pii/S0168822726000586>





## SCHOLARLY PUBLICATIONS School of Electrical Engineering KIIT Deemed to be University

**Journal Name:** Energies

**IF:** 3.2

**Title:** Uncertainty-Aware Planning of EV Charging Infrastructure and Renewable Integration in Distribution Networks: A Review

**Author:** Tripathy S.; Fahnbulleh E.B.; Ghatak S.R.; Lopes F.; Acharjee P.

**Details:** Volume 19, Issue 5, March 2026

**Abstract:** Transitioning from internal combustion engines to electric vehicles (EVs) is critical for fighting climate change. This requires widespread adoption of Electric Vehicle Charging Stations (EVCSs). This review explores challenges and opportunities of EVCS and RES integration, concentrating on EV charging-demand uncertainty modeling, forecasting algorithms, planning techniques, and the impacts on DN. It discusses forecasting algorithms in terms of learning-based and non-learning-based methods. EVCS planning algorithms are also discussed, involving deterministic and stochastic methods. The technical, environmental, reliability, and economic impacts of EVCS-RES on DNs are discussed. It explores optimization strategies to minimize these impacts, incorporating them as objective functions. Additionally, the survey examines the methods of incorporating EVs and RES in DN, optimizing EVCS allocation while addressing EVCS impacts on voltage regulation, power loss, and network reliability. The importance of energy management systems and advanced forecasting techniques in balancing power fluctuation and improving efficiency is emphasized. Finally, it identifies open problems and future directions for forecasting and optimizing EVCS-RES integration in the networks. These findings are highly relevant for designing resilient and efficient modern power systems that leverage RES and EVCS in the grids.



**URL:** <https://www.mdpi.com/1996-1073/19/5/1131>

