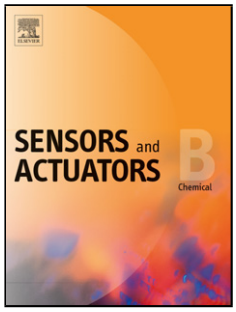

Title: Highly sensitive Love wave acoustic biosensor for uric acid

Authors: Lokesh Rana, Reema Gupta, Monika Tomar, Vinay Gupta

PII: S0925-4005(18)30128-X
DOI: https://doi.org/10.1016/j.snb.2018.01.122
Reference: SNB 23971

To appear in: *Sensors and Actuators B*

Received date: 28-7-2017
Revised date: 11-1-2018
Accepted date: 12-1-2018

Please cite this article as: Lokesh Rana, Reema Gupta, Monika Tomar, Vinay Gupta, Highly sensitive Love wave acoustic biosensor for uric acid, Sensors and Actuators B: Chemical https://doi.org/10.1016/j.snb.2018.01.122

Highly sensitive Love wave acoustic biosensor for Uric Acid

Lokesh Rana[1], Reema Gupta[1], Monika Tomar[2], Vinay Gupta[1]*
[1] Department of Physics and Astrophysics, University of Delhi, Delhi, India
[2] Physics Department, Miranda House, University of Delhi, Delhi, India
[*] drguptavinay@gmail.com

Highlights:

1. Love wave based Surface acoustic devices have been fabricated on Lithium Tantalate.
2. Poly Di Methyl Siloxane (PDMS) microchannels have been prepared and integrated with the device.
3. Uric acid sensing has been performed with high sensitivity and low detection limit.

Abstract

In the present work, zinc oxide (ZnO) thin film based Love wave acoustic device has been exploited for realization of a biosensor. These Love wave devices have been fabricated on 36°YX lithium tantalate with ZnO thin film deposited using rf sputtering technique as the guiding layer. Polydimethylsiloxane (PDMS) microchannels have been prepared and integrated on the propagation path on the fabricated device. Detection of uric acid has been demonstrated using the developed biosensing device by measuring the shift in center frequency on interaction with uric acid. The developed uric acid sensor paves way towards the realization of handheld biosensor for future wireless sensing technology.

Keywords: Surface acoustic wave, Biosensor, Uric Acid, Zinc oxide