ZnO nanostructures based high-sensitive chemical sensors for hydrazine detection

Umar Ahmad, M. M. Rahman, 모하메드바즘, 김상훈, 이은원,
한윤봉*
전북대학교
(ybhahn@chonbuk.ac.kr*)

We report herein a hydrazine amperometric sensor, for the first time, based on ZnO nanostructures, i.e. ZnO nanonails and nanorods, grown via thermal evaporation process. The detailed structural and optical studies revealed that the as-synthesized ZnO nanostructures possess good structural and optical properties. The fabricated ZnO nanonails based hydrazine electrochemical sensors showed a high and reproducible sensitivity of 8.56 μA cm^{-2} μM^{-1}. The response time of the fabricated nanonails based hydrazine sensor was less than 5s with a linear range from 0.1 to 1.2 μM and correlation coefficient of R= 0.999. The limit of detection (LOD), based on S/N ratio was estimated to be 0.2 μM. Therefore, our works open a new way to utilize simply-grown ZnO nanostructures as an efficient electron mediator to fabricate efficient hydrazine sensors.