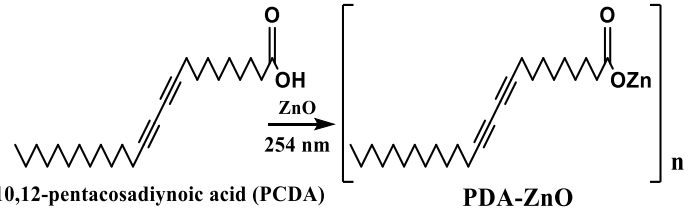
Versatility of Cellulose Stimuli Responsive Membranes in the Detection of Dimethylamine

Edwin S. Madivoli*[1,2], Patrick G. Kareru[1] and Katharina M. Fromm[2]
[1]Department of Chemistry, Jomo Kenyatta University of Agriculture and Technology Nairobi, Kenya
[2]Department of Chemistry, University of Fribourg, Fribourg Switzerland
*Corresponding Author: edwin.madivoli@jkuat.ac.ke

Abstract

Food contamination leads to disease outbreaks
There is need to detect molecules released when food is going bad.
Amines are some of the compounds to released
This can be achieved through detection using PDA-ZnO

Methodology



Scheme 1: Photopolymerization of PCDA to PDA.

Results and Discussions

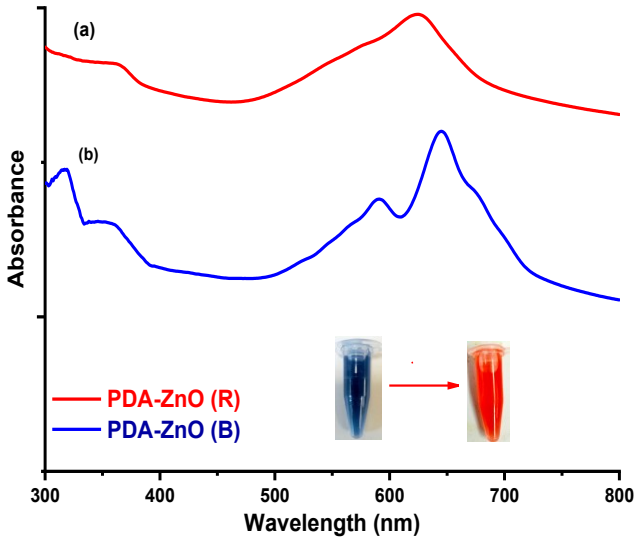


Figure 1: Bathochromic shift of PDA-ZnO nanosheets at 90 ℃

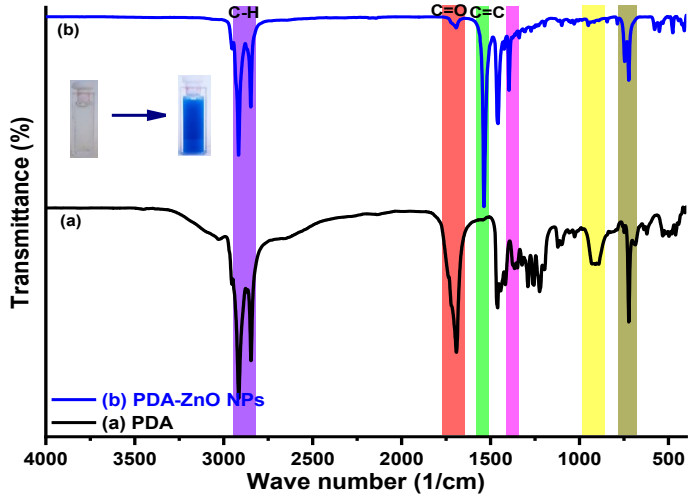


Figure 2: IR spectra of (a) PDA and (b) PDA-ZnO NPs

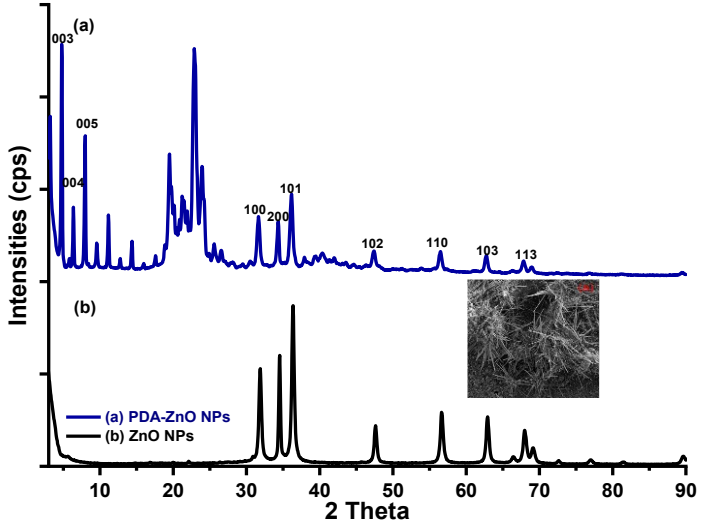


Figure 3: X-ray diffractograms of (a) ZnO (b) PDA-ZnO nanosheets

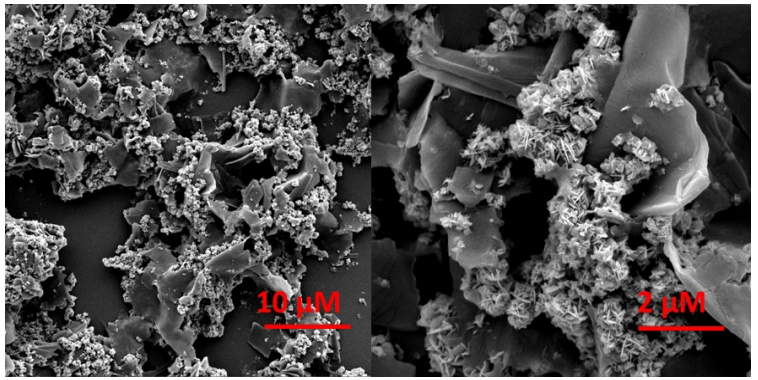


Figure 4: SEM micrographs PDA -ZnO nanoclusters

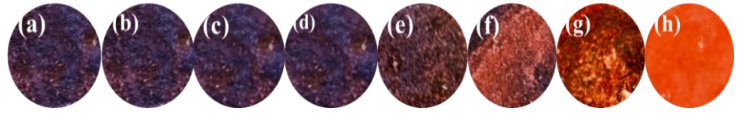


Figure 5: Solvatochromic response of (a) PDA-ZnO-CE in (b) ethanol (c) acetone (d) dichloromethane (e) NaOH (f) acetic acid (g) acetonitrile (h) dimethylamine

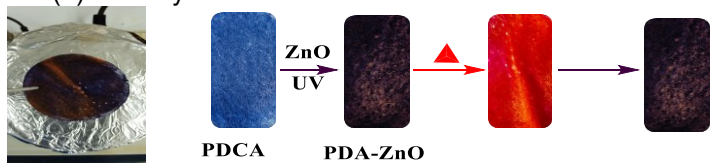


Figure 6: Reversible thermochromism in PDA-ZnO-CE membranes

Conclusion

PDA-ZnO nanocomposite exhibited

- Reversible thermochromism
- solvatochromism

PDA-ZnO was able to detect dimethylamine

Acknowledgement

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