

## Supporting information

### **Acid-assisted polymerization: Novel synthetic route of sensing layer based on PANI film and chelating agent protected by non-biofouling layer for Fe<sup>2+</sup> or Fe<sup>3+</sup> potentiometric detection**

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**Fig. SV1a.** Aniline mixed with concentrated formic acid and APS: ratio 1:0.1.



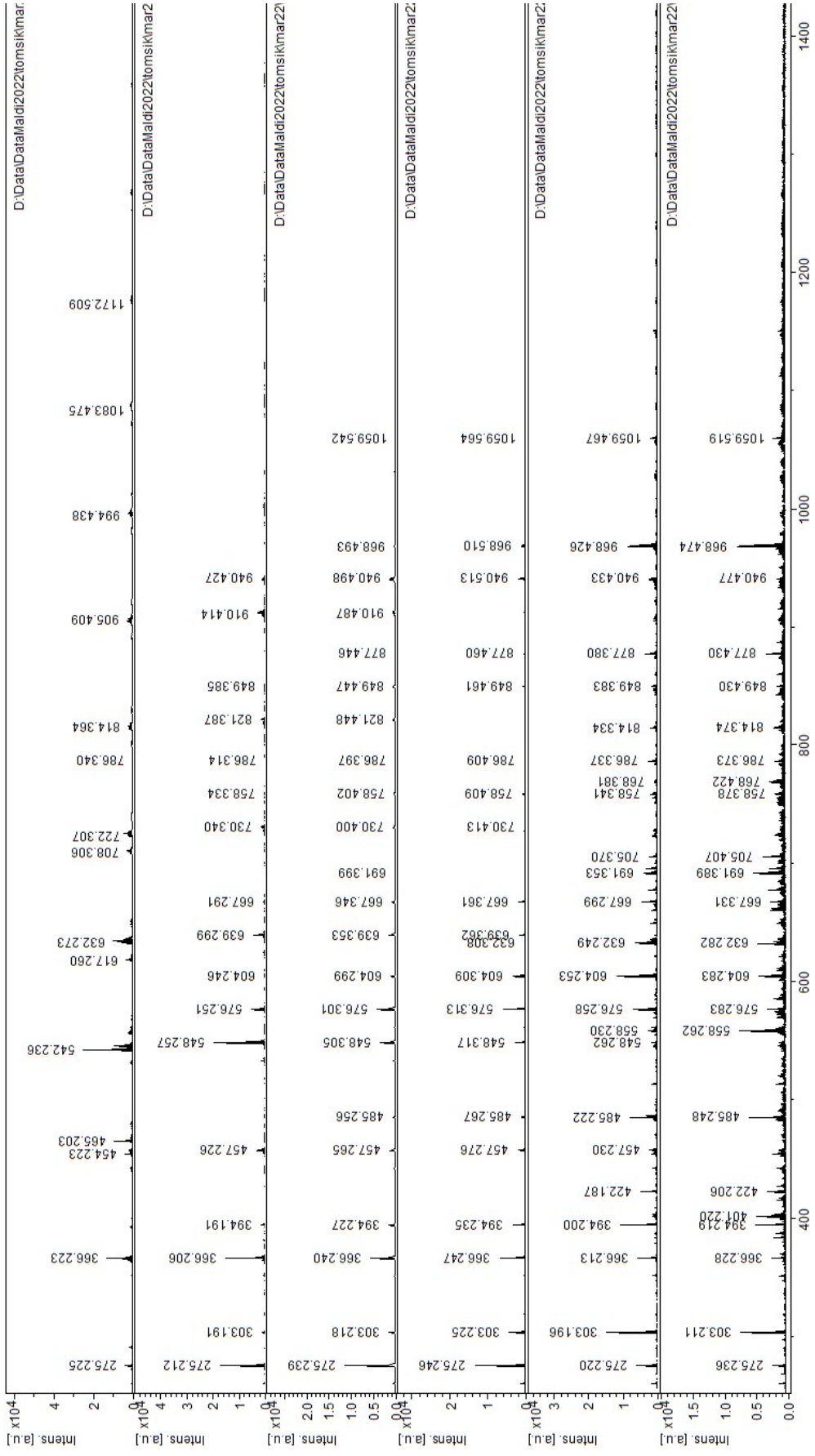
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**Fig. SV1b.** PANI acid-assisted synthesis.



IMG\_2880-after 24h.MOV

**Fig. SV1c.** PANI suspension after 24 h.



**Fig. S1** Evolution of molecular weight of PANI measured by MALDI-ToF.

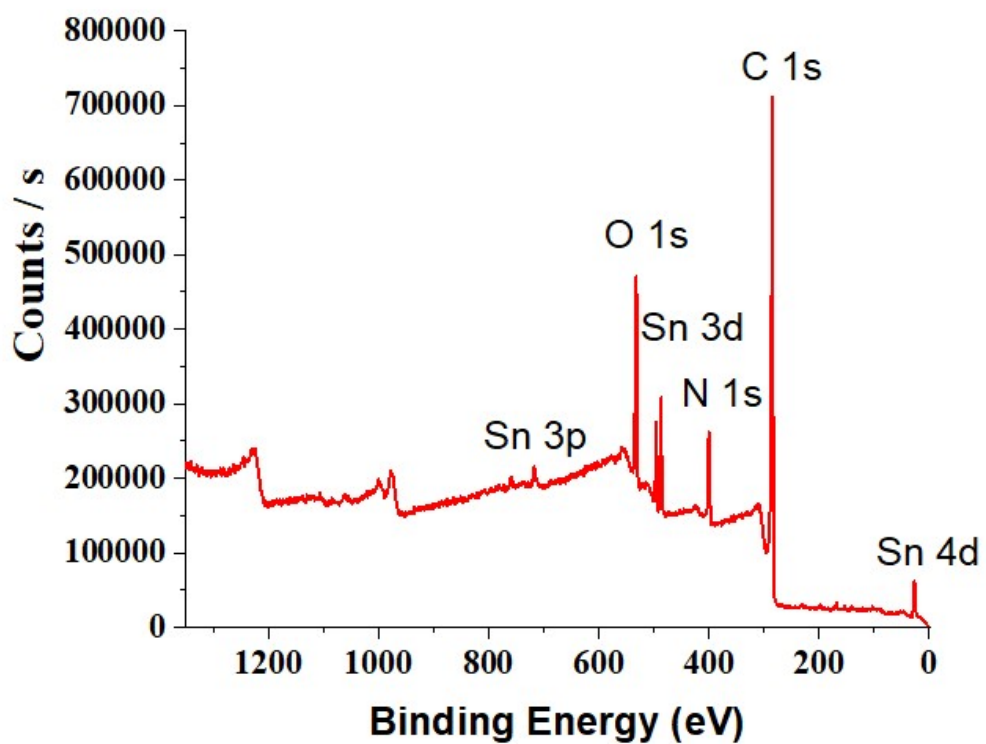
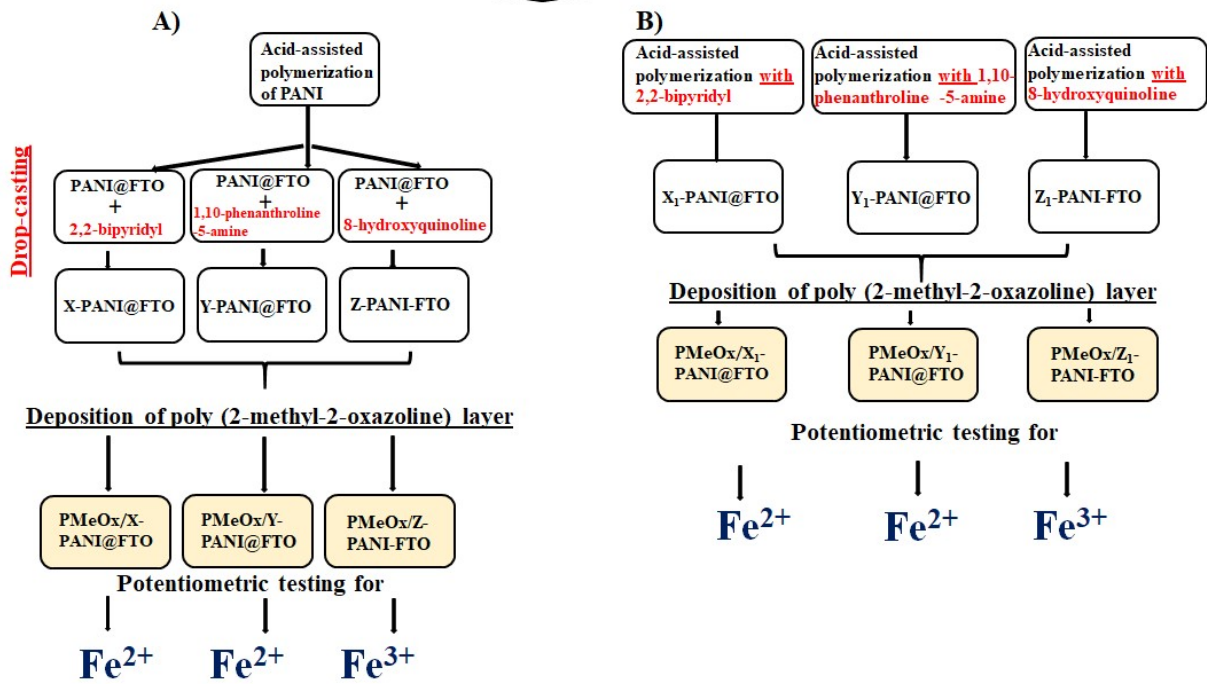


Fig. S2. XPS element full scan image.

## Roadmap



**Fig. S3.** Roadmap of different sensors preparation: acid-assisted PANI synthesis, deposition of chelating molecules, deposition of PMeOx, and testing of individual sensors.