reducing the interaction of F^- ions with UiO-66-NH_2.

The fluorescence intensity increases linearly with the increase of fluoride ion concentration in solution Fig. 3(a). The linearity relationship of intensity with fluoride ion concentration is shown in Fig. 3(b), it can be seen that the value of the regression coefficient (R^2 = 0.9945) shows a fairly good value. The linearity equation value is I = 65882C + 16032, where I is the emission intensity, and C is the fluoride ion concentration. Based on this value, the Limit of Detection (LoD) can be calculated using the equation (LoD = 3σ/k). σ is the standard deviation and k is the slope of the linear equation. The LoD value obtained is 0.036 ppm (0.036 $mg \cdot L^{-1}$), a value much lower than the maximum limit of fluoride ions in drinking water determined by the *World Health Organization* (WHO) of 1.5 $mg \cdot L^{-1}$ and the *Environmental Protection Agency* (EPA) of 2 $mg \cdot L^{-1}$.

V. Conclusion

In this research, we focus on the synthesis of UiO-66-NH_2 with various acid modulators and the detection of fluoride ions in various media and pH. The synthesis of UiO-66-NH_2 using HF as a modulator gives higher % crystallinity and fluorescence intensity than other modulators. Water media and pH 7 are appropriate conditions for fluoride ion detection using UiO-66-NH_2. The LoD value obtained is 0.036 ppm which is much lower than the maximum limit for fluoride ions in drinking water determined by the World Health Organization (WHO) and the Environmental Protection Agency (EPA).

Conflict of Interest

The authors declare no conflict of interest.

Author Contributions

Muh Rizal B—Conducted the research, validation, formal analysis, investigation, and writing the original draft; Mudasir—Validation, formal analysis, writing-review and editing; Fajar Inggit Pambudi—Conceptualization, validation, formal analysis, writing-review, and editing.

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