Pengaruh aktivasi panas dan penambahan Cu pada zeolit terhadap daya antimikroba pada staphylococcus aureus

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Abstrak

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Zeolite is a pore mineral occupied by ions and water molecules. Heat activation of zeolite causes the release water molecules, from the pores and increases zeolite adsorbance capacity. Zeolite can he used as an antimicrobial agent by shifting its cation with other cation that has antimicrobial effect. The aim of this research is to determine the influence of heat activation and Cu addition on zeolite towards its antimicrobial effect on Staphytococcus aureus. There were 5 groups for heat activation of zeolite experiment: room temperature (100°C, 200°C, 300°C, and 400°C). Using effective heat activation temperature, the research was continued to determine the effect of Cu addition on Staphylococcus aureus growth. There were 4 goups of Cu concentration addition on zeolite: 0.025 M, 0.05 M, 0.1 M, and 0.2 M. Antimicrobial test of Cu-zeolite was determined by diffusion method. The data were analyzed by using Anova and LSD. The result showed that there was a significant difference among various zeolite heat activation toward Staphylococcus aureus growth ($p<0.05$). The temperature of 200°C became the effective heat activation of zeolite against Staphyloccus aureus growth.It also showed a significant effect of various Cu concentration additions on zeolite towards Staphylococcus aureus growth ($p<0.05$). In conclusion, zeolite heat activation up to 400°C and the addition of Cu on zeolite up to 0.2 M influence the antimicrobial effect on Staphylococcus aureus.