Kitosan Teradiasi Gamma 5 kGy Mempengaruhi Muatan Permukaan Nanopartikel MikroRNA

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Abstract	Abstract Nanoparticles are non-viral vectors with biodegradability and controlled release abilities that are widely used in gene transfer. Nanoparticles are said to be able to effectively combine and concentrate DNA and RNA in products to be delivered to various cells. Based on changes in microRNA expression in cancer, delivery using microRNA nanoparticles from outside the body is expected to be one of the therapeutic solutions. Irradiated chitosan is assumed to undergo cutting off the main polysaccharide group to produce a smaller molecular weight compared to nonirradiated chitosan. The desired irradiation process to reduce chitosan particle size so that it has better absorption efficiency into the cell needs to be further evaluated including looking at its effect on the final potential zeta. Zeta potential is important to ensure that the nanoparticles are positive enough to be able to enter the negatively charged cell membrane. Chitosan used was irradiated at a dose of 5kGy mixed with 1: 1 nucleic acid ratio. The results of zeta potential measurements showed the highest zeta potential values Ãƒ Â¢Ã¢Â‚Â¬Ã¢Â€Â¹Ãƒ Â¢Ã¢Â‚Â¬Ã¢Â€Â¹of 15.27 mV and 13.63 mV obtained in the formula with chitosan-microRNA composition only. The measurement result of zeta potential of irradiated chitosan nanoparticles decreases the surface charge of the particles, this can reduce the potential of nanoparticles for the process of delivery into the cell. Keyword : Irradiated chitosan; nanoparticle; zeta potential
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