Sintesis hidrogel superabsorben polietilen oksida - alginat dengan teknik radiasi gamma dan karakterisasinya

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Abstrak

In order to develop the applications of radiations for biomaterial preparation, a non - toxic superabsorbent has been sinthesized. A series of superbaorbent hydrogel were prepared from aqueous solution containing 5% polyethylene oxide (PEO) with different concertration of alginate (0,5-2.0%) were irradiated at the doses of 20,30 and 40 kGy by gamma radiation. The gel fraction, swelling kinetics and the equilibrium degree of swelling (EDS) of the hydrogels were studied. It was found that the incorporation of even 2 % alginate (sodium salt) increased the EDS of the hydrogels from 20 g to 320 g/g. At a dose of 20 kGy, PEO - alginat hydrogels with high gel fraction (-80%) and very high EDS (-30 g/g) were obtained. The hydrogels were also found to be sensitive to the ionic solution of NaCL. The PEO - alginate hydrogels could be considered as candidate biomaterials in health care.