

(2)

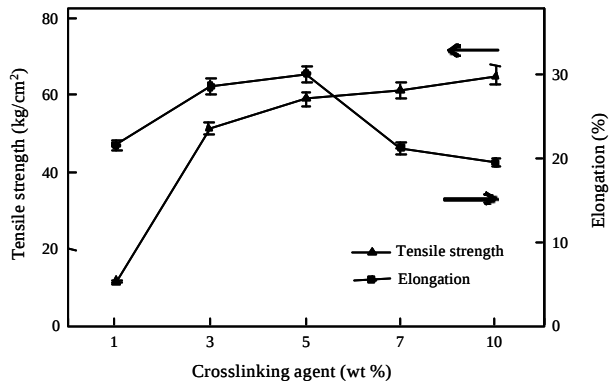


Figure 5. Tensile strength and elongation of alginate film with degree of crosslinking in wet state.

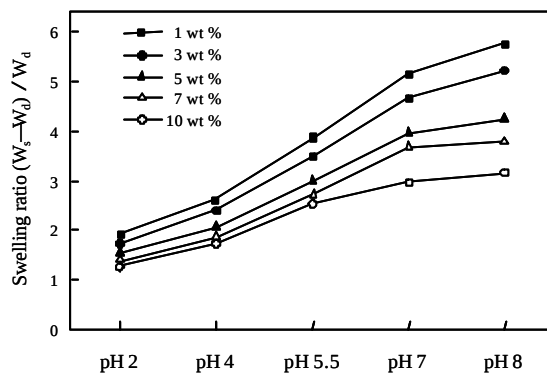


Figure 6. Swelling behaviors of alginate films depending on degree of crosslinking and pH.

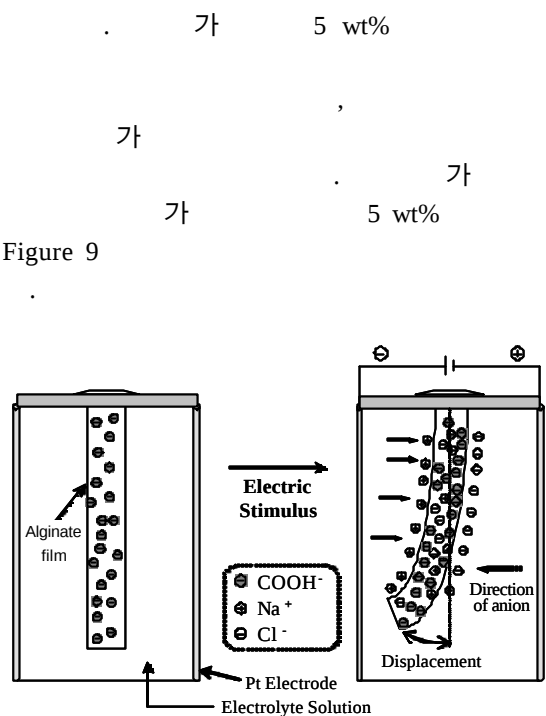


Figure 7. Schematic illustration of electro-responsive mechanism of ionic film under electric stimulus.

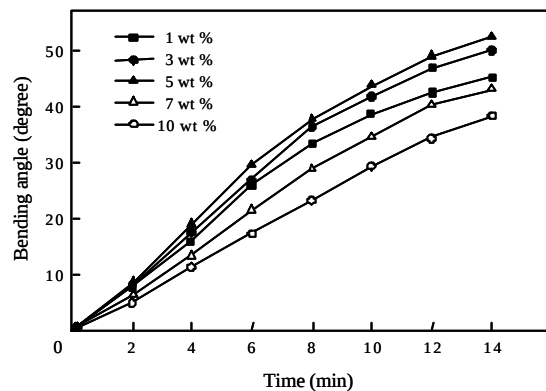


Figure 8. Bending behaviors of alginate films with degree of crosslinking in NaCl electrolyte solution (ionic strength 0.1 M) at 5 V.

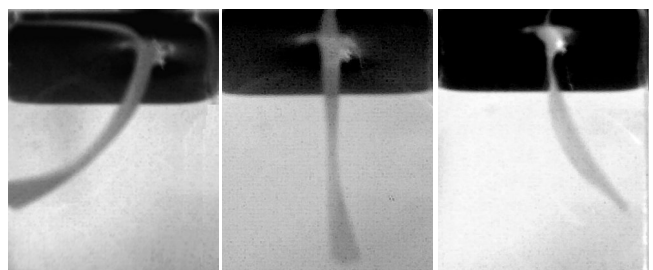


Figure 9. Photographs of reversible bending behavior by alternating current of 5 V every 2 minutes in electric field.

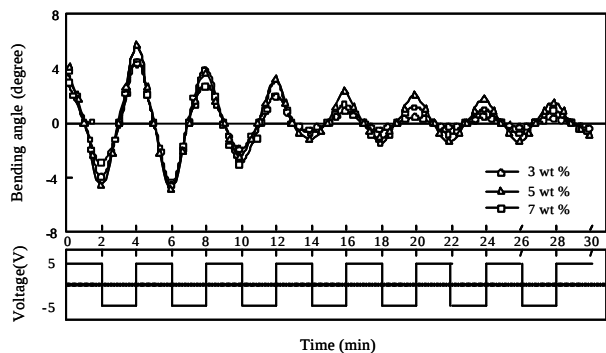
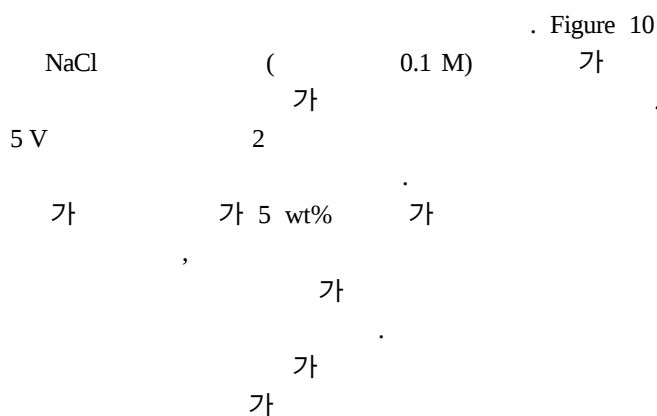


Figure 10. Reversible bending behaviors of alginate films with degree of crosslinking by alternating current of 5 V every 2 minute in NaCl electrolyte solution (ionic strength 0.1 M).

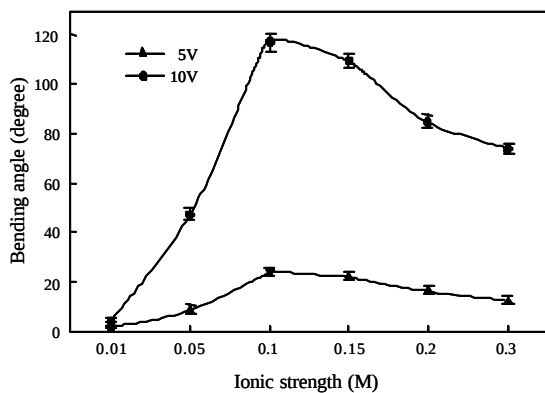


Figure 11. Effect of ionic strength of NaCl electrolyte solution on electro-response of alginate film with 5 wt% crosslinking agent at 5 and 10 V for 5 minutes.

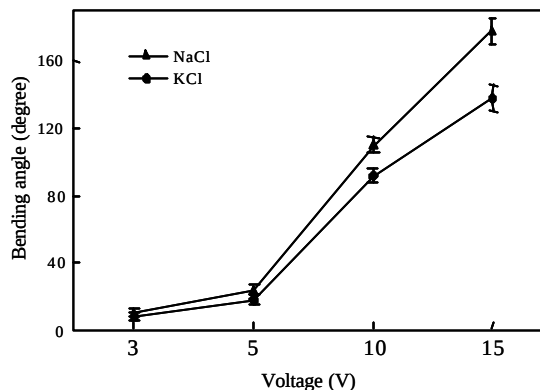
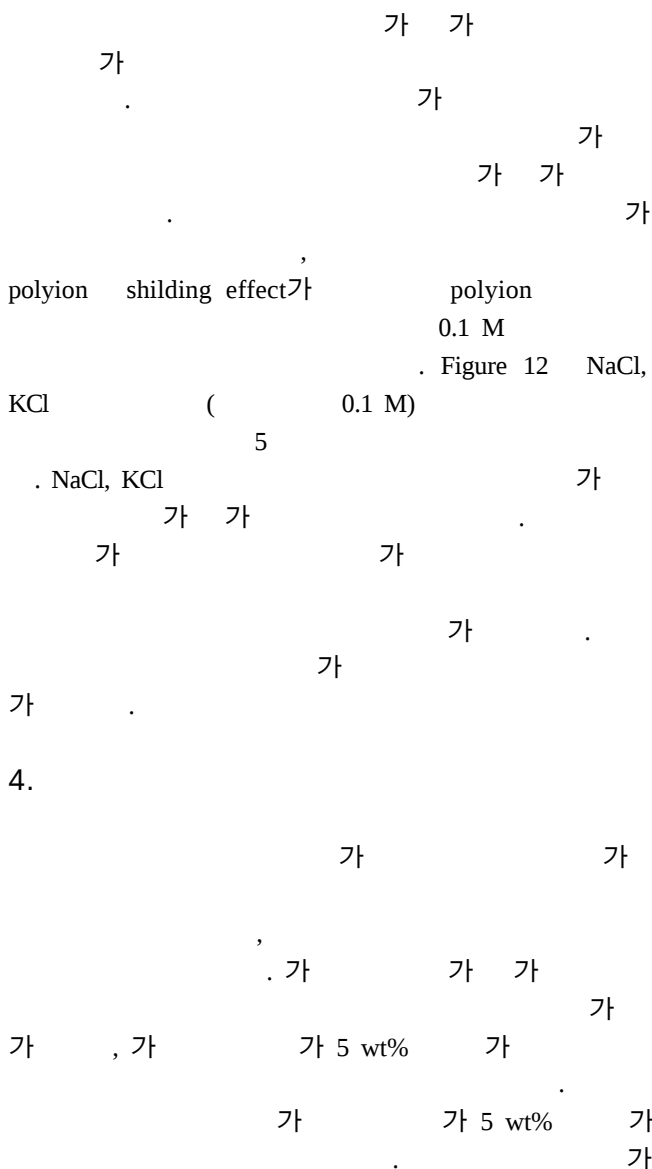


Figure 12. Bending behaviors of alginate films with 5 wt% crosslinking agent with the applied voltage in NaCl and KCl electrolyte solution (ionic strength 0.1 M) for 5 minutes.



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