

Development of active packaging film based on quaternary chitosan and procyanidin-g-guar gum

Jun Liu

College of Food Science and Engineering, Yangzhou University, Yangzhou, 225127, PR China

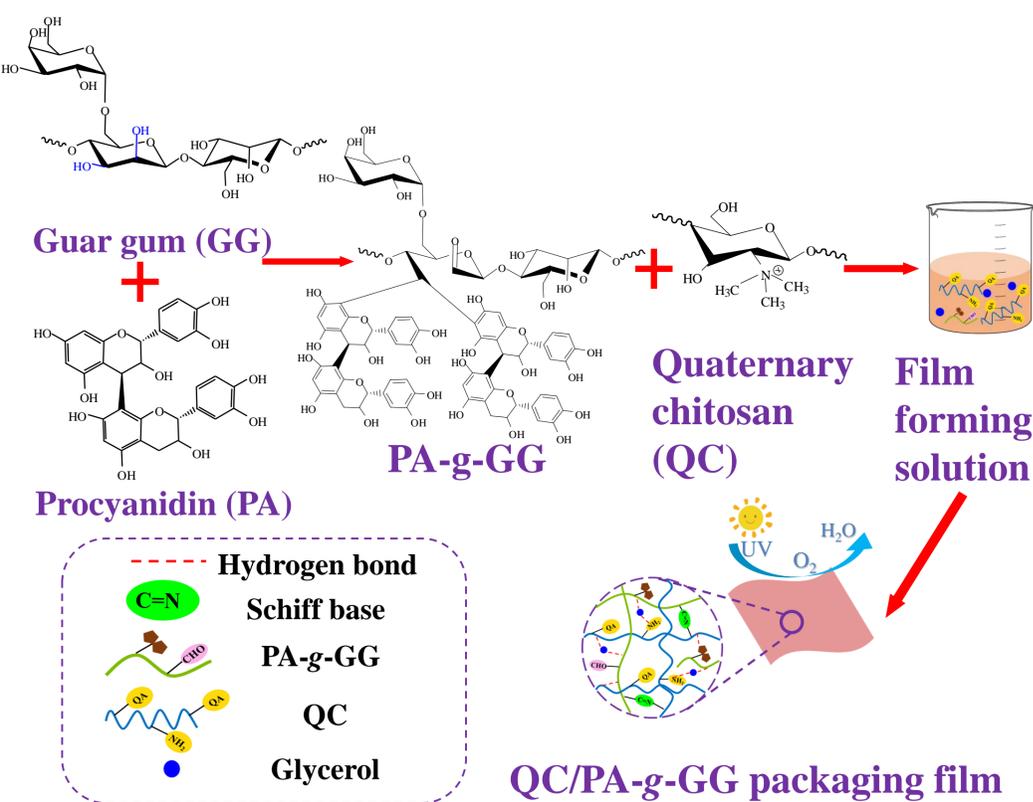
INTRODUCTION & AIM

The development of active packaging films based on polysaccharides and plant-originated polyphenols has emerged in recent years. However, the low stability of polyphenols greatly limits the practical use of polysaccharide/polyphenol films.

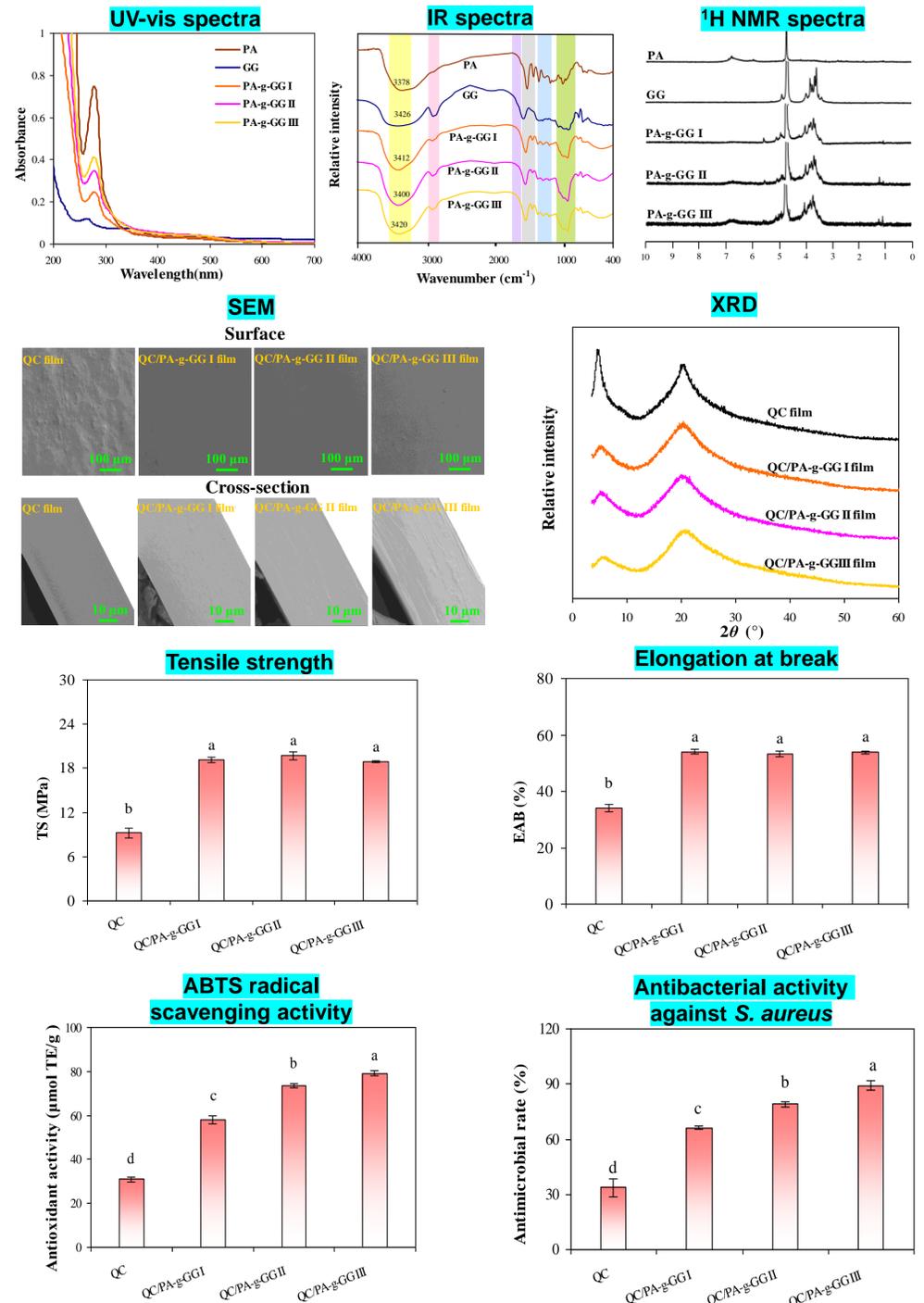
In this study, a typical polyphenolic compound, procyanidin (PA), was covalently linked to guar gum (GG) through graft copolymerization to produce PA-g-GG. PA-g-GG was characterized by UV-vis, FT-IR, ¹H NMR spectroscopy. Then active packaging films were prepared by blending PA-g-GG and quaternary chitosan (QC). QC/PA-g-GG film was characterized for its structure, mechanical properties, and antioxidant and antibacterial activities.

METHOD

Synthesis of PA-g-GG and preparation of QC/PA-g-GG film



RESULTS & DISCUSSION



CONCLUSION

PA-g-GG had a positive impact on the mechanical, antioxidant and antibacterial properties of QC-based films. The antioxidant and antibacterial effects of QC/PA-g-GG films gradually increased with PA group content in PA-g-GG.

FUTURE WORK / REFERENCES

In future, QC/PA-g-GG film can be applied in the active packaging of fruits, vegetables, meat and aquatic products.