

SUPPLEMENTARY INFORMATION

Ionic liquid strategy for chitosan production from chitin and molecular insights

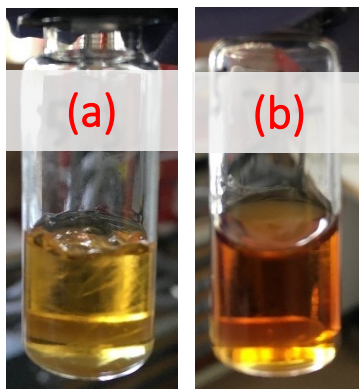
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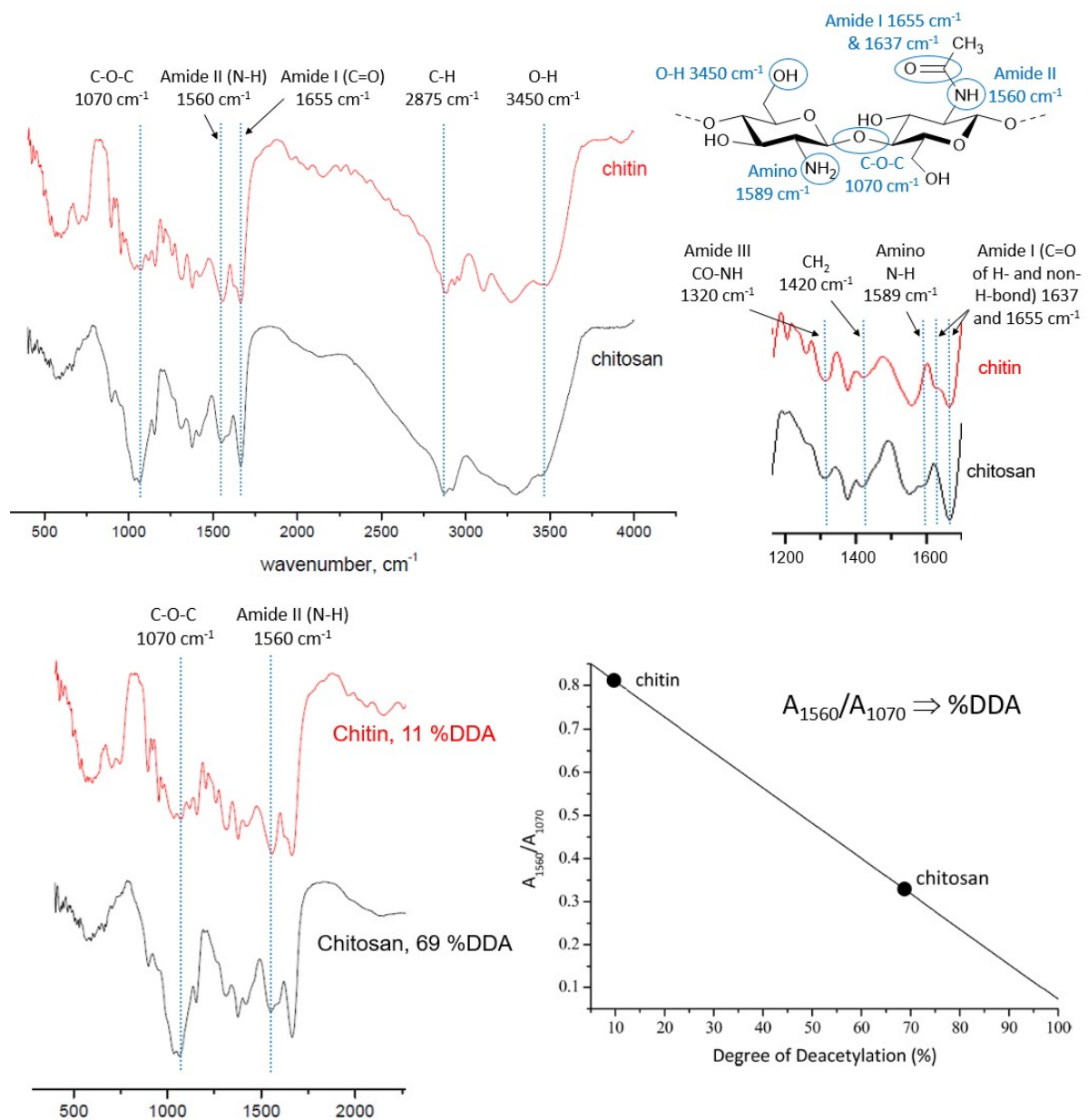
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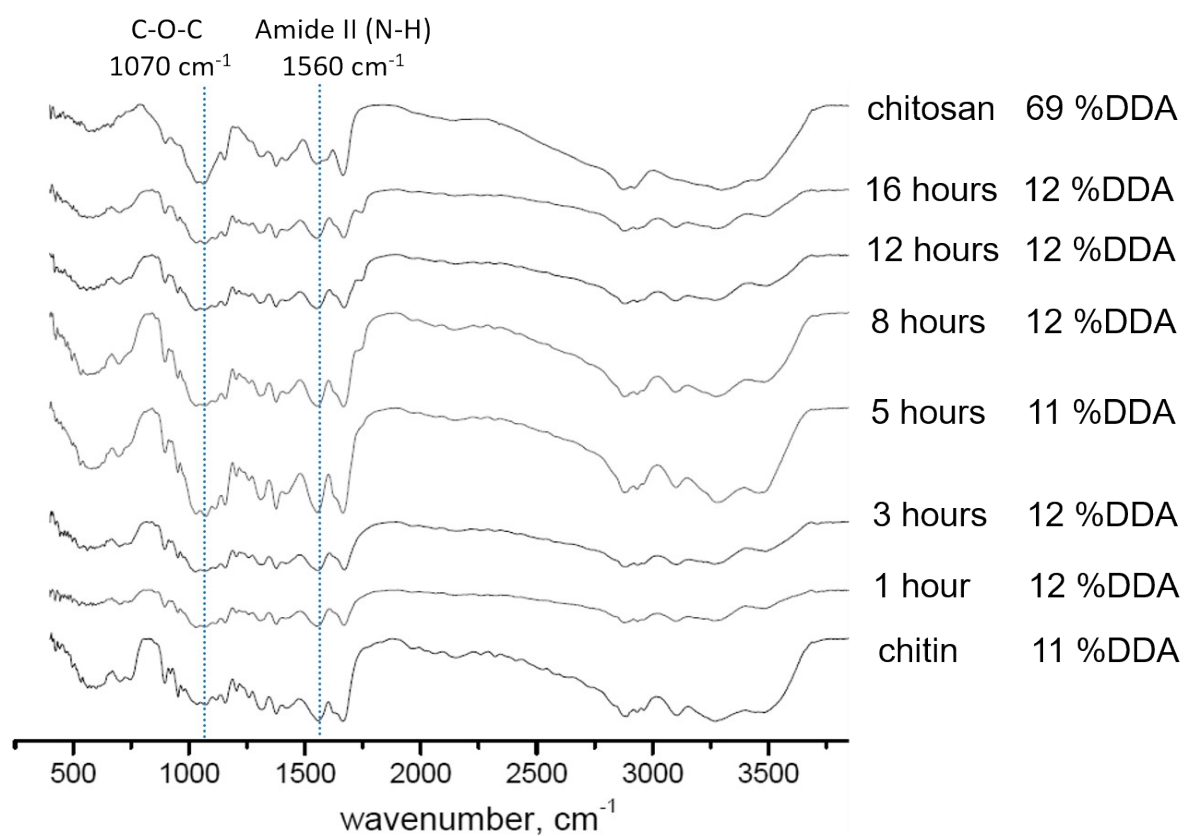
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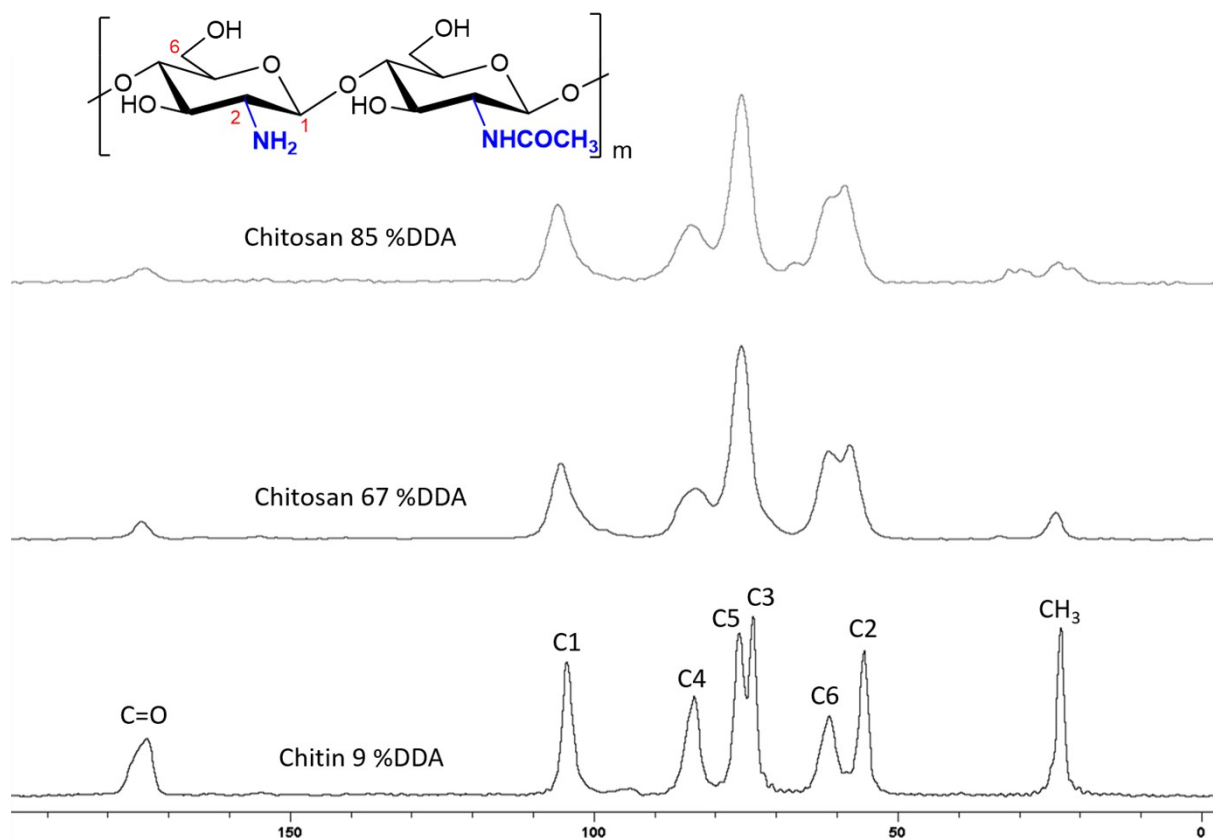
SI 1. Images of chitin (50 mg) pretreatment experiments with [Emim][OAc] IL (2 mL) illustrate (a) remaining chitin at 100 °C, 3 hours and (b) totally dissolved chitin at 120 °C, 1 hour.



SI 2. FT-IR spectroscopy of chitin and chitosan shows characteristic signals corresponding to the structures and calculations of %DDA.

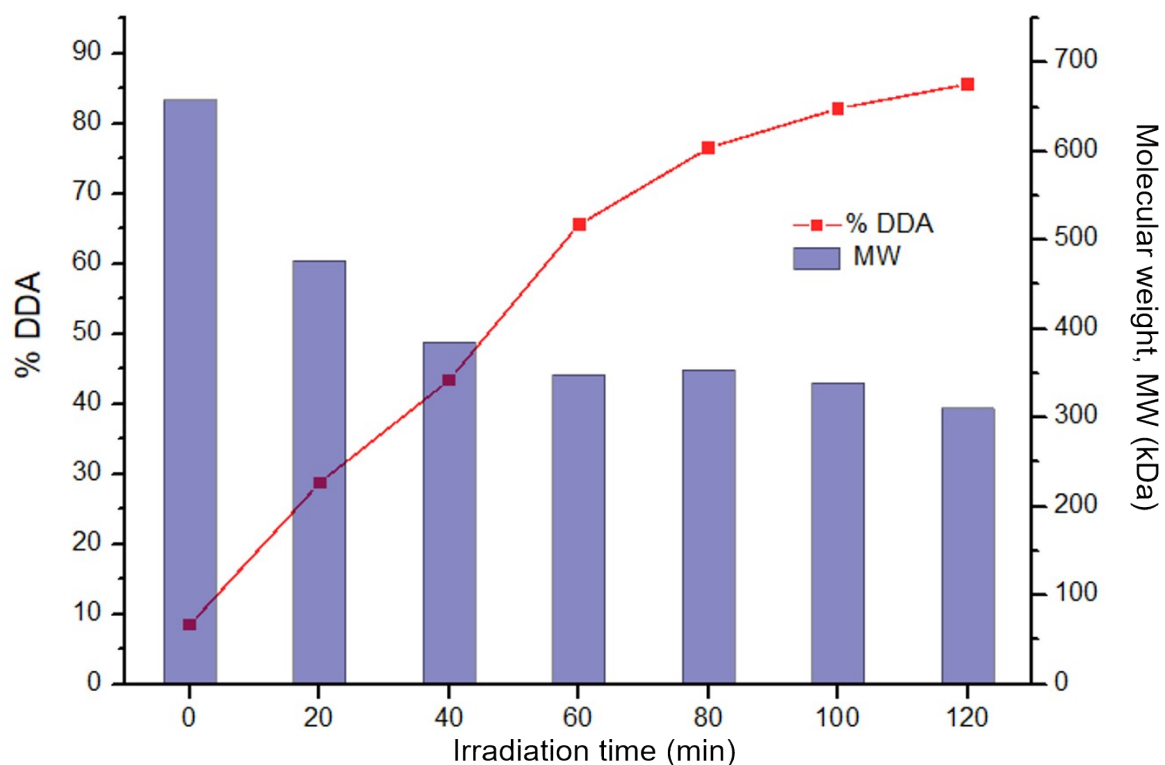


SI 3. FT-IR results demonstrate no deacetylation after 1-16 hours of IL pretreatment at 100°C using 50 mg chitin and 2 mL [Emim][OAc] IL.



SI 4. Solid state ^{13}C NMR results show the structural signals of different chitin and chitosan samples.

IL-pretreated chitin $\xrightarrow[\text{microwave 20 - 120 min, 100 }^{\circ}\text{C, } \sim 50 \text{ W}]{40 \text{ wt.\% NaOH in water,}}$ Chitosan



SI 5. Aqueous 40 wt.% NaOH solution was used for microwave-assisted deacetylation of IL-pretreated chitin (75 mg) at 100 °C, plotted with %DDA and molecular weight (kDa) against irradiation time (minutes).

References

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