

## *Intensifying chitin hydrolysis by adjunct treatments – an overview*

Article

Accepted Version

Zainal Abidin, M., Junqueira-Gonçalves, M. P., Khutoryanskiy, V. ORCID: <https://orcid.org/0000-0002-7221-2630> and Niranjan, K. ORCID: <https://orcid.org/0000-0002-6525-1543> (2017) Intensifying chitin hydrolysis by adjunct treatments – an overview. *Journal of Chemical Technology and Biotechnology*, 92 (11). pp. 2787-2798. ISSN 0268-2575 doi: <https://doi.org/10.1002/jctb.5208> Available at <https://centaur.reading.ac.uk/68864/>

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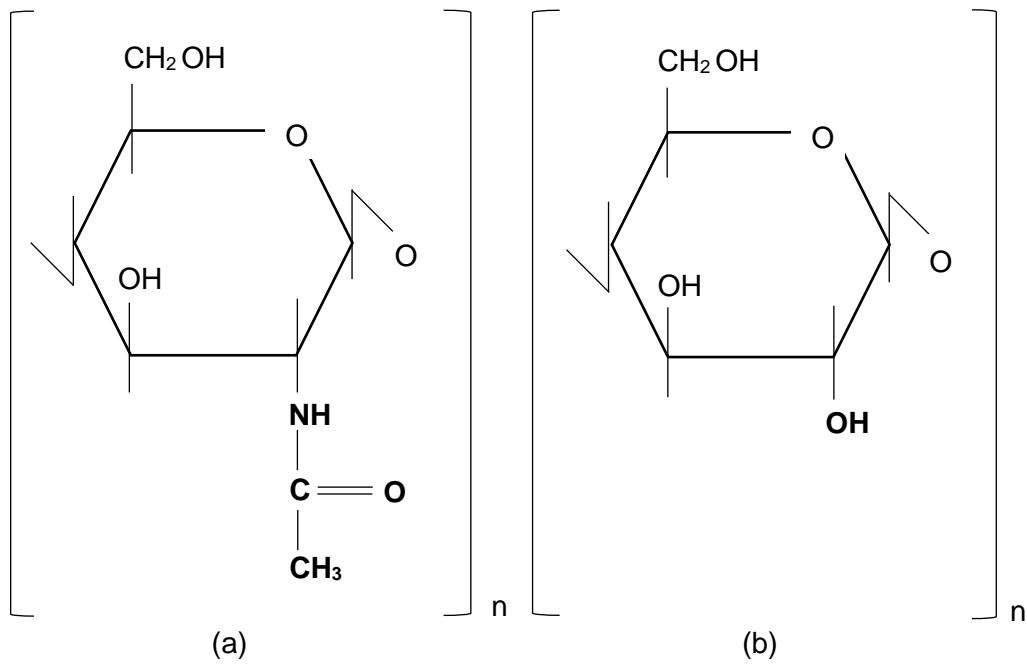


Figure 1. Chemical structures of: (a) Chitin and (b) Cellulose

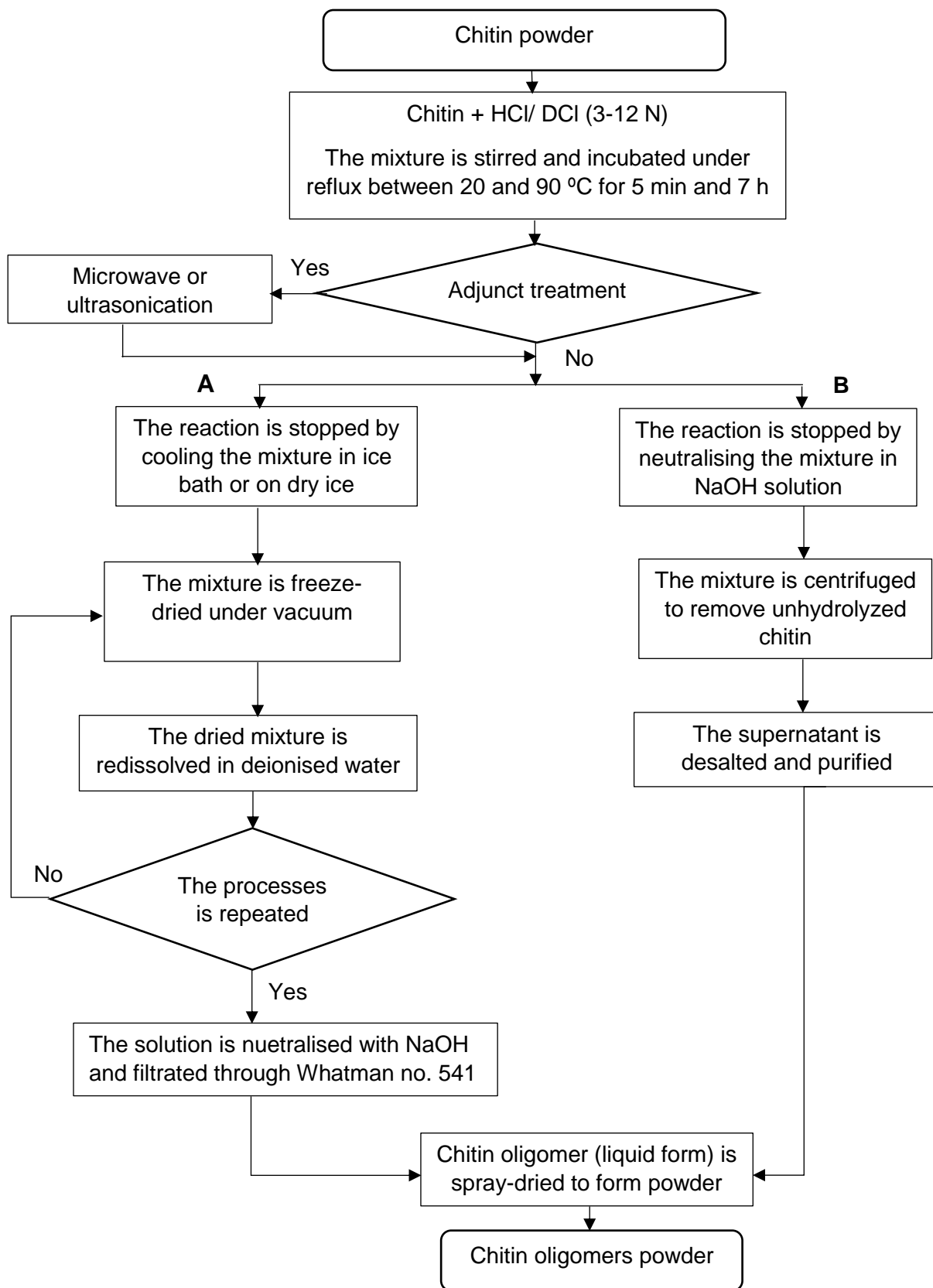


Figure 2. Process flowsheet for acid hydrolysis of chitin with or without adjunct treatment. A and B represent different method for recovering chitin oligomers from the reaction mixture. <sup>27,30,32,40-42,44,45</sup>

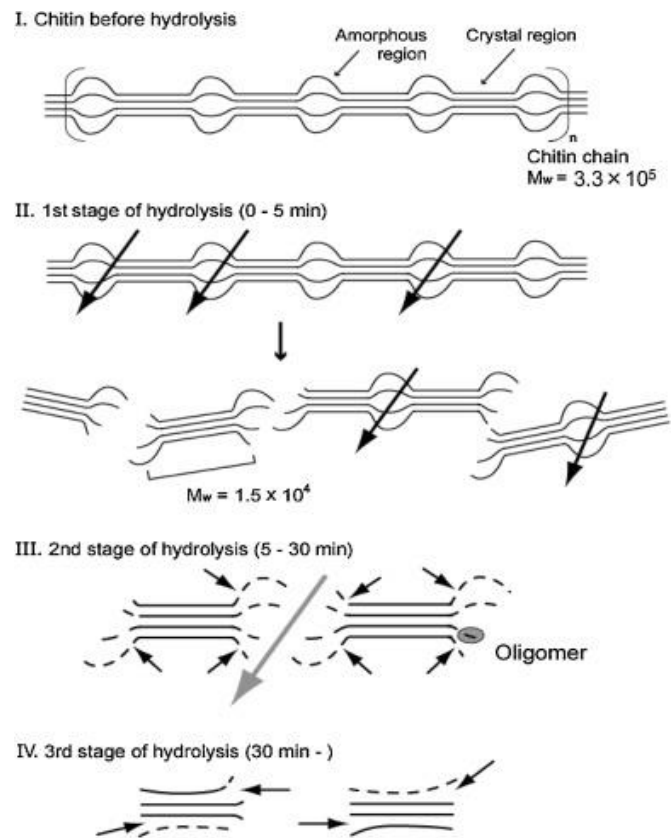


Figure 3. Possible mechanism of chitin hydrolysis in concentrated HCl. Reprinted with permission from Kazami et al.<sup>45</sup> Copyright 2015 Elsevier.

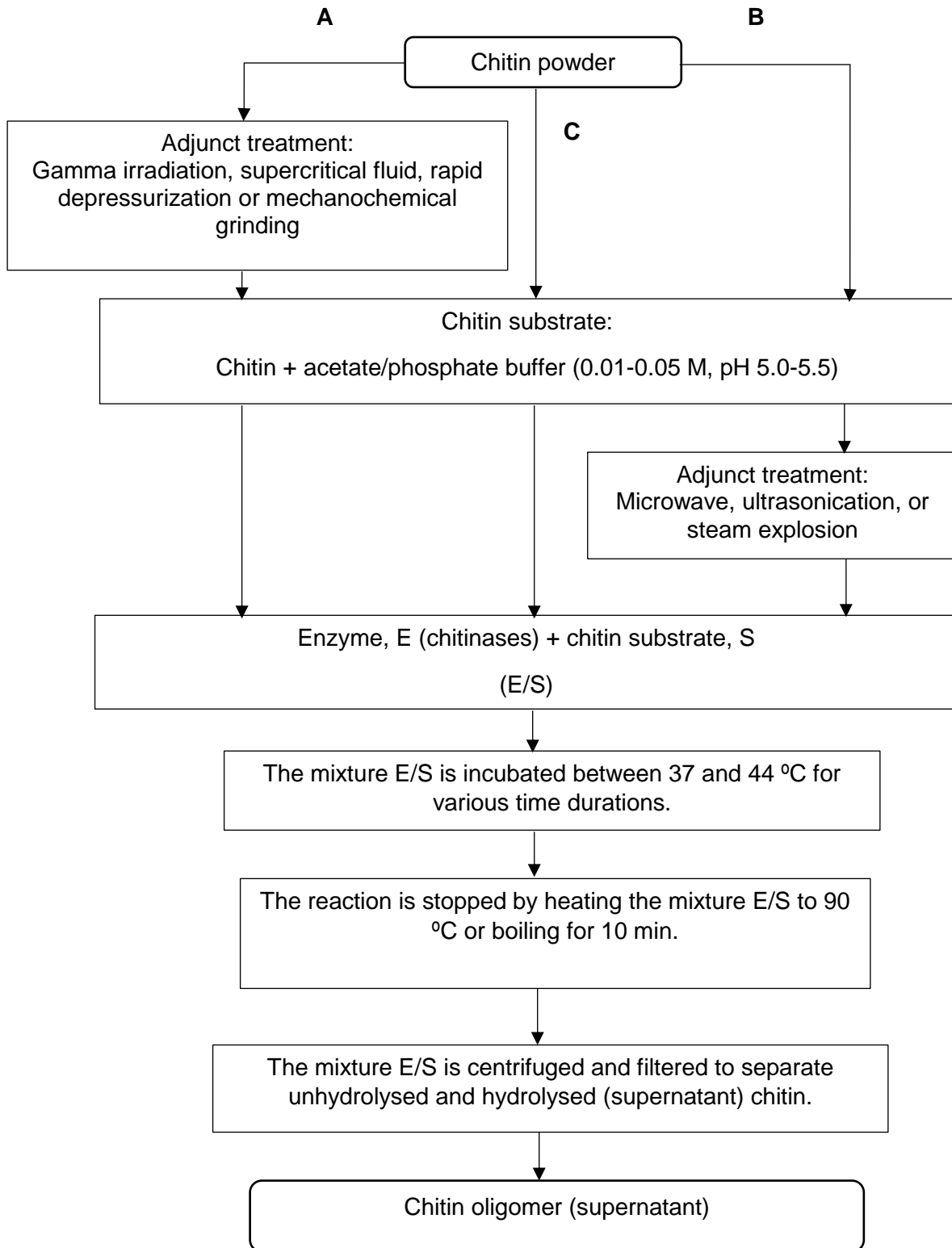


Figure 4. Flow diagram for the enzymatic hydrolysis on chitin with or without adjunct treatment. A and B represent treatment of chitin powder and chitin substrate, respectively, and C represents no treatment prior to hydrolysis. <sup>31,33,35,36-38</sup>

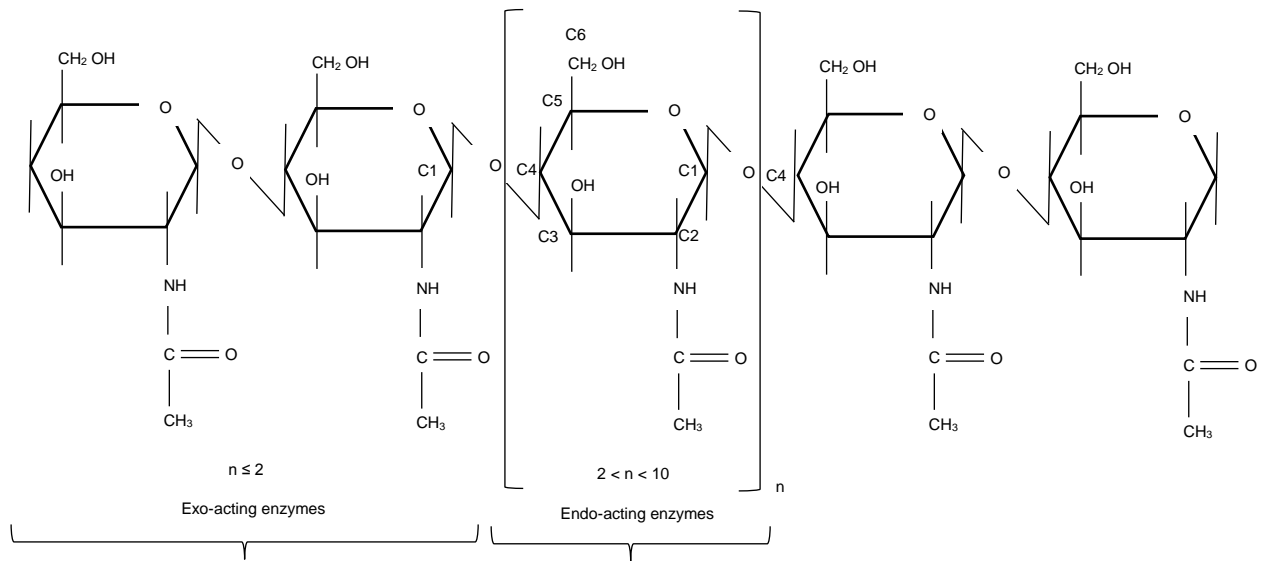


Figure 5. Structure of chitin polymer, and mechanisms of endo-acting and exo-acting enzymes on the chitin during hydrolysis.

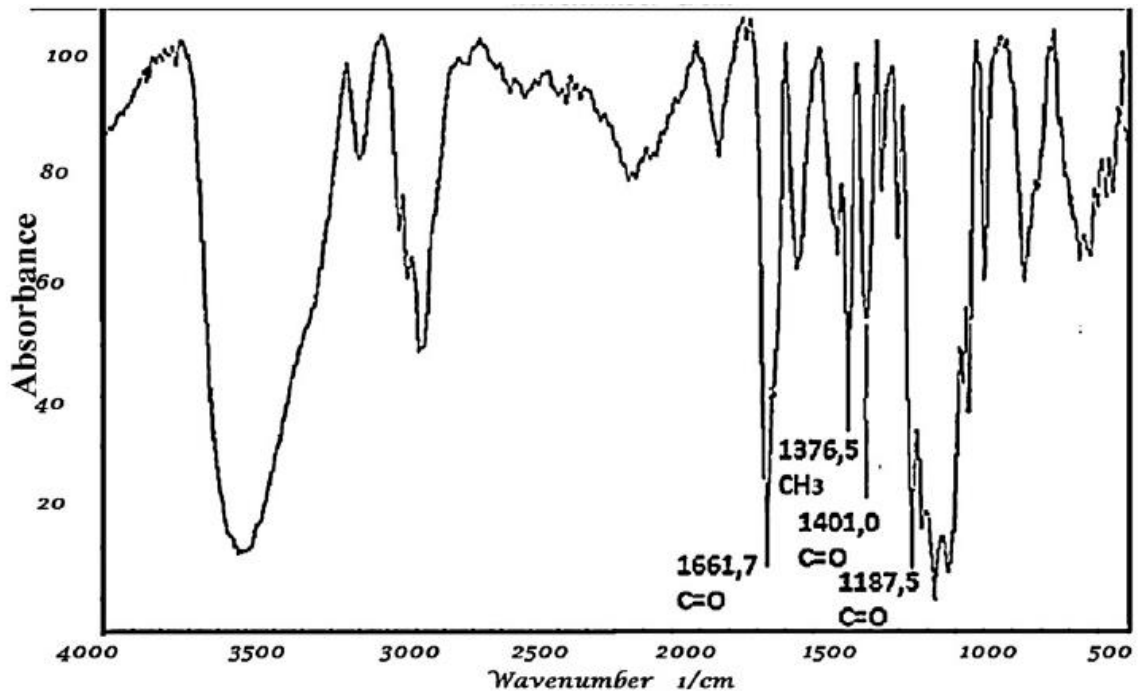


Figure 6. FT-IR spectrum of chitin oligomers. Reprinted with permission from Ngo et al.<sup>30</sup> Copyright 2008 Elsevier.



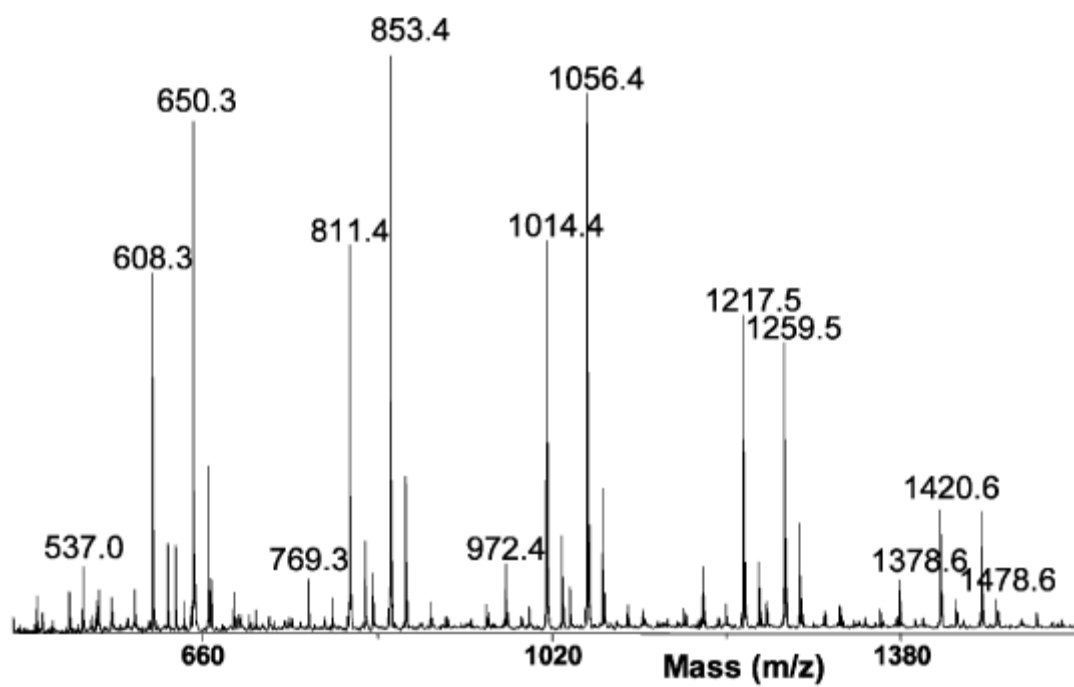


Figure 7. MALDI-TOF spectrum of the chitin oligomers with DA 90 %. Reprinted with permission from Trombotto et al.<sup>42</sup> Copyright 2008 American Chemical Society.