Intensifying chitin hydrolysis by adjunct treatments – an overview

Article

Accepted Version

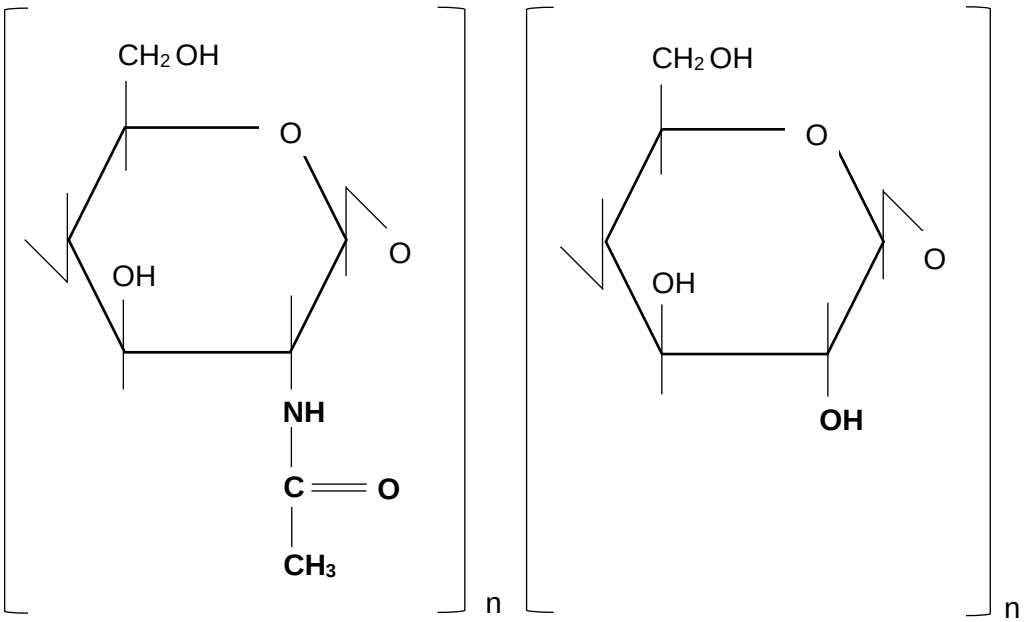

Figure 1. Chemical structures of: (a) Chitin and (b) Cellulose

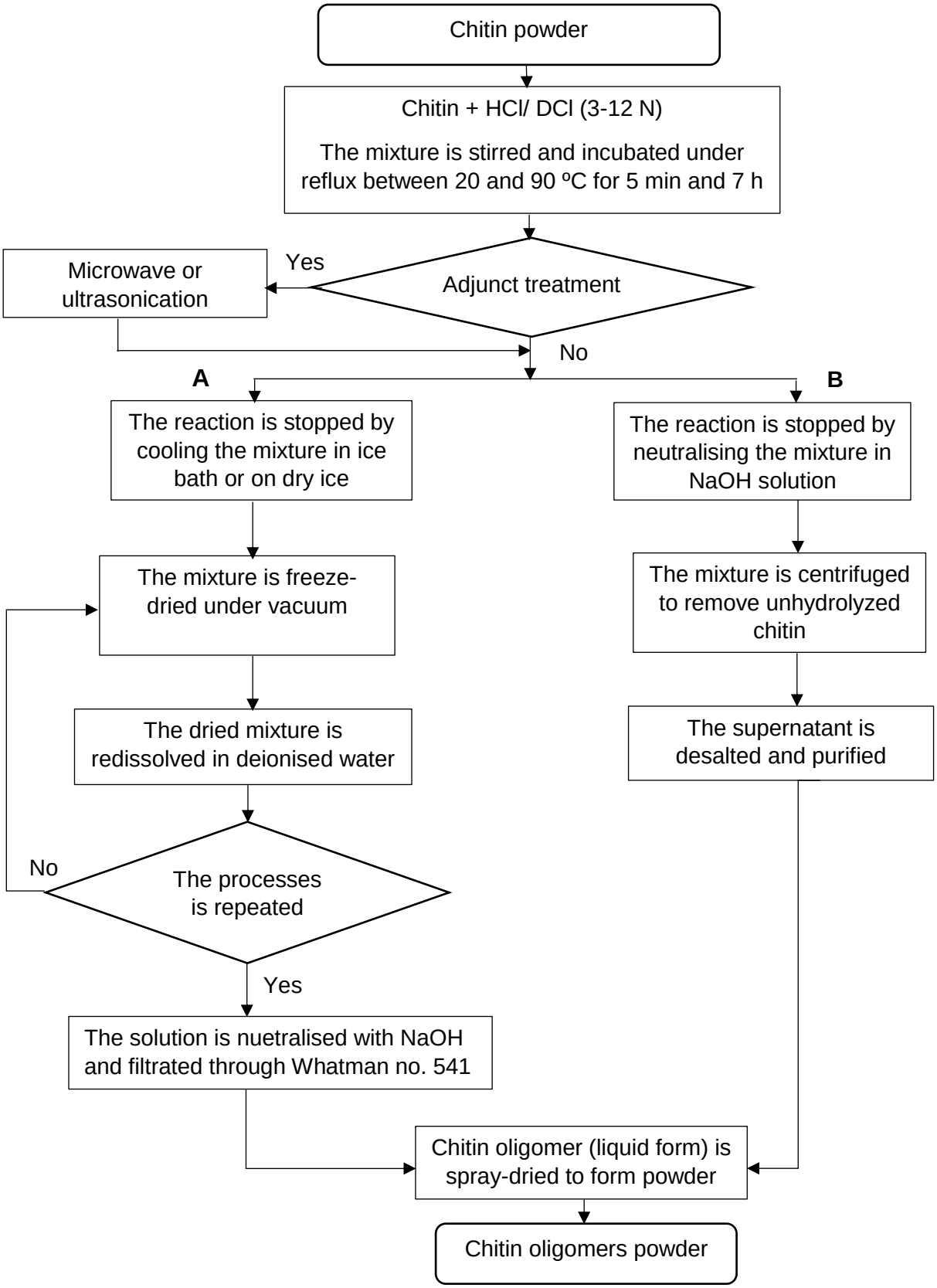

Figure 2. Process flowsheet for acid hydrolysis of chitin with or without adjunct treatment. A and B represent different method for recovering chitin oligomers from the reaction mixture. [27,30,32,40-42,44,45]

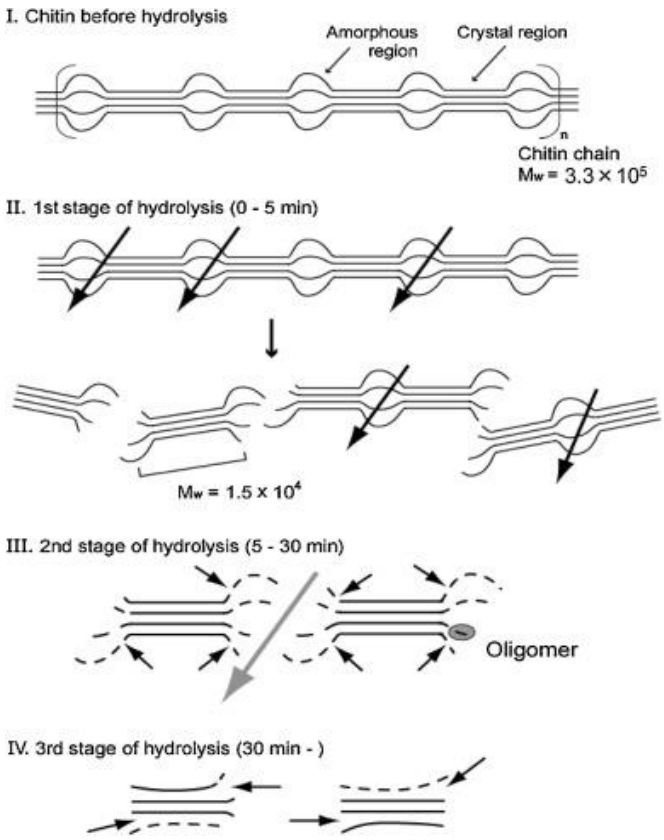

Figure 3. Possible mechanism of chitin hydrolysis in concentrated HCl. Reprinted with permission from Kazami et *al*.[45] Copyright 2015 Elsevier.

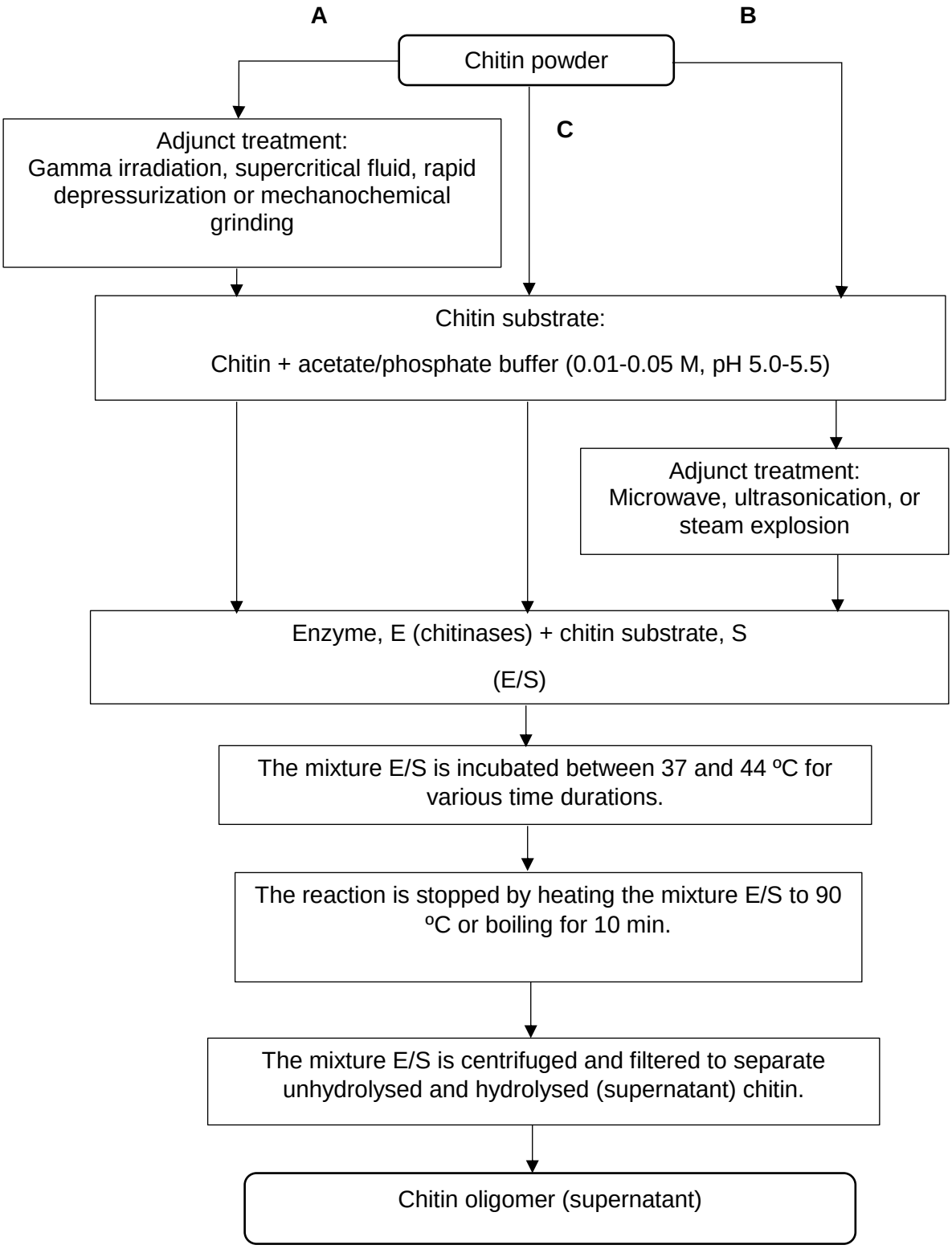

Figure 4. Flow diagram for the enzymatic hydrolysis on chitin with or without adjunct treatment. A and B represent treatment of chitin powder and chitin substrate, respectively, and C represents no treatment prior to hydrolysis. [31,33,35,36-38]

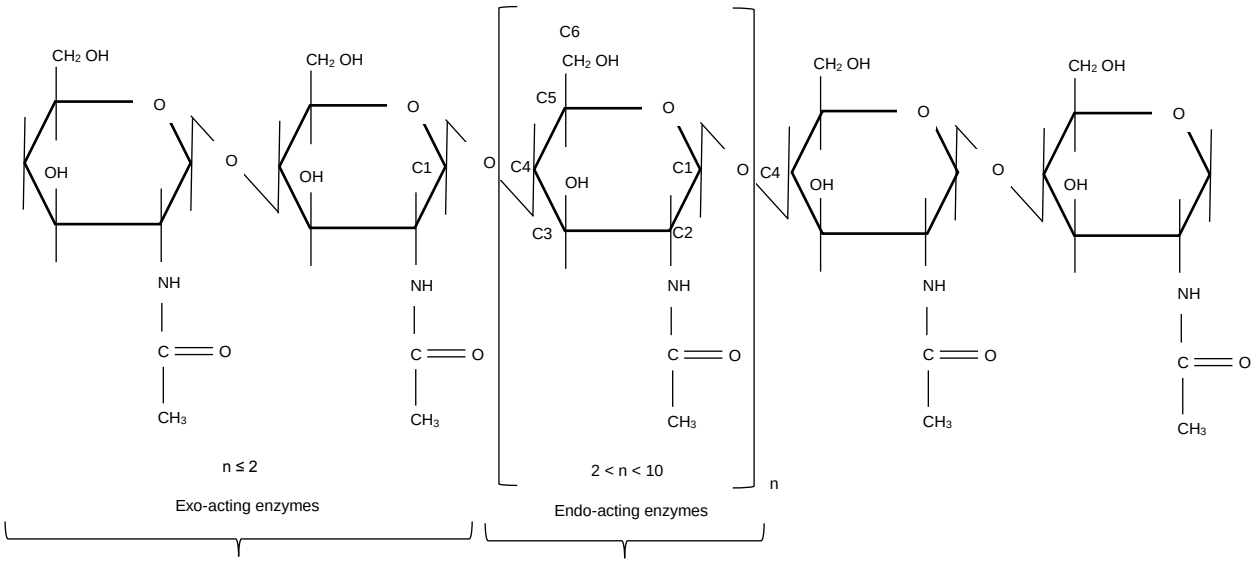

Figure 5. Structure of chitin polymer, and mechanisms of endo-acting and exo-acting enzymes on the chitin during hydrolysis.

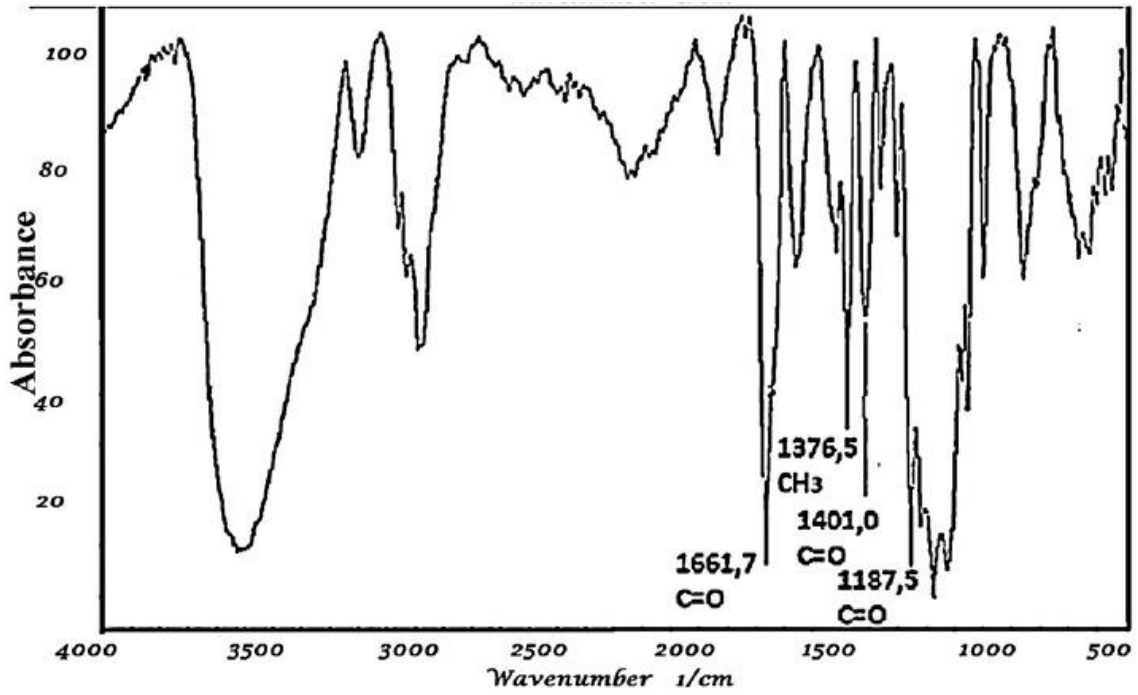

Figure 6. FT-IR spectrum of chitin oligomers. Reprinted with permission from Ngo et *al*.[30] Copyright 2008 Elsevier.

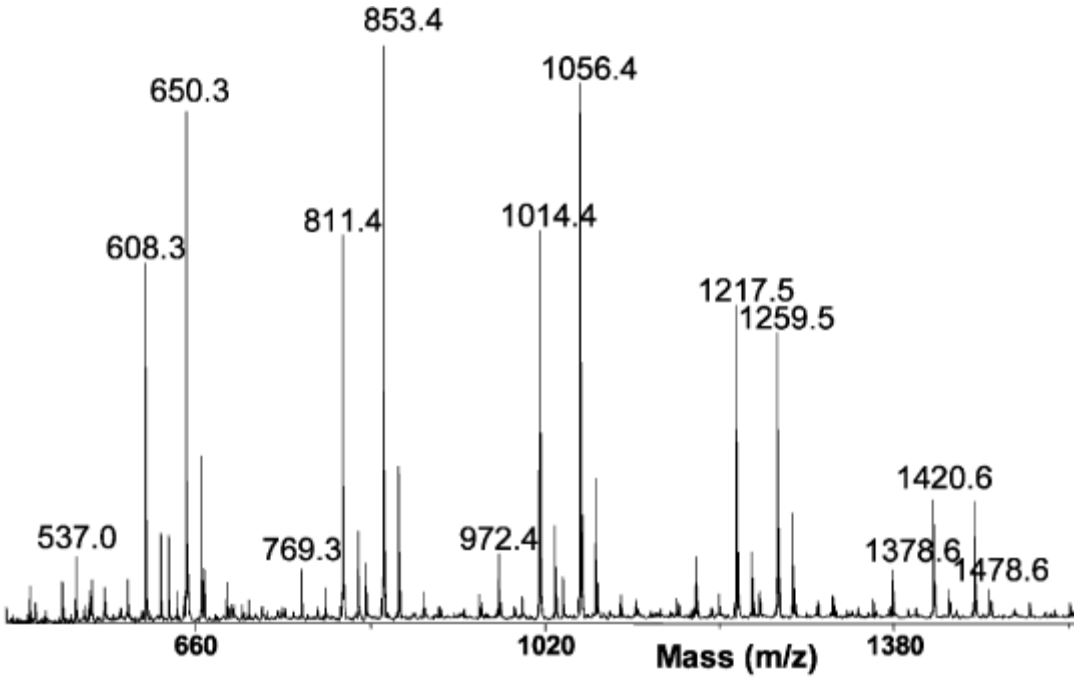

Figure 7. MALDI-TOF spectrum of the chitin oligomers with DA 90 %. Reprinted with permission from Trombotto et *al*.[42] Copyright 2008 American Chemical Society.