



*Dedicated to the memory of  
Professor Eugen Segal (1933-2013)*

## IMINO-CHITOSAN DERIVATIVES. SYNTHETIC PATHWAY AND PROPERTIES

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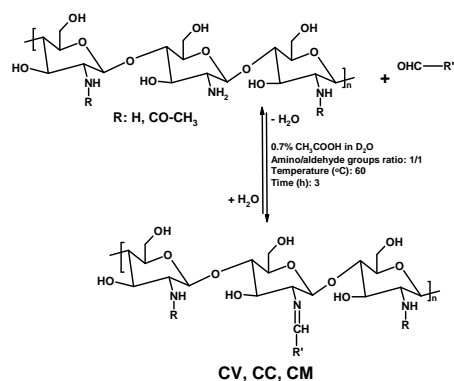
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Three chitosan based biopolymers have been synthesized by condensation of three naturally occurring aldehydes with amine groups of chitosan yielding Schiff base modified chitosan. Since literature data lack or are poor in detailed experimental data on the chemistry involved in the preparation of chitosan Schiff bases, special attention was directed to enhance knowledge on this subject. Five different spectral methods, in solution, hydrogel and solid state have been employed with this aim. It was concluded that imine linkages are formed on chitosan chains while water leaves the reaction system.



### INTRODUCTION

Chitosan is a challenging biopolymer that attracts researchers' interest due to its outstanding biological properties: biocompatibility, nontoxicity, nonantigenicity, haemostatic, antimicrobial, fungistatic, spermicidal, central nervous system depressant, immunoadjuvant and antitumor activity, the ability to improve wound healing or clot blood, the ability to absorb liquids and to form protective films and coatings, selective binding of acidic liquids, thereby lowering serum cholesterol

levels, accelerating bone formation and ability to act as matrix for obtaining advanced biocomposites.<sup>1-4</sup> Labeled by many natural product suppliers as “too good to be true”, chitosan is commercialized for preventing plenty diseases, thus insuring a better quality of a longer life. However, specific scientific studies indicate that chitosan properties are not strong enough to allow its use as a drug, but mainly as a food supplement. Yet, its unique properties make chitosan an excellent candidate for the development of new biomaterials. To improve its characteristics or to

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