

**Title** Ultraviolet radiation-induced accelerated degradation of chitosan by ozone treatment  
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#### **Abstract**

Combined with ultraviolet radiation as an accessory factor, ozone can result in accelerated degradation of chitosan. The ultraviolet radiation-induced accelerated degradation of chitosan was demonstrated by means of determination of viscosity-average molecular weight (M<sub>v</sub>). In addition, the structure of the degraded chitosan obtained by ozone treatment combined with ultraviolet radiation was characterized by FT-IR, <sup>13</sup>C NMR, and X-ray diffraction spectral analysis. The chemical structure of the degraded chitosan sample was not obviously modified. There was no significant change of the total degree of deacetylation (DD) of degraded chitosan compared with the initial chitosan. The technique of the combination of ozone and ultraviolet radiation is promisingly suitable for scale-up industrial manufacture of low-molecular-weight chitosan.