

3. Results

3.1. Characterization of low molecular weight chitosan (LMWC)

3.1.1. Determination of viscosity average molecular weight (M.W.)

The average of duplicate viscosity measurements was used for the calculation of the inherent and reduced viscosities for each sample. The produced grades of chitosan had differed in molecular weight with same degree of deacetylation under the same depolymerization condition (molarity of acid HCl = 0.1M, temperature= 100 °C, pH>1, stirring strength = 750 r.p.m.) except the duration of reaction as show in the following table:

(Table 3.1): The average molecular weight of chitosan produced by acid hydrolysis within different time intervals, calculated using Mark-Houwink Equation.

Time of depolymerization reaction (Hours)	Molecular weights determined (KDa.)
3.5	24
5	16
5.10	13
5.5	10
6	7

From (Table 3.1), it can be seen that the molecular weight of chitosan grades decrease as the time of depolymerization reaction increase.