

## 3.2. Characterization of the insulin-loaded nanoparticles dispersion system

### 3.2.1. Particle Size Determination

Particle size distribution of different insulin-loaded nanoparticles preparations is presented in (Table 3.2). The average diameters of F4 were  $85 \pm 2.53$  nm, while F1 was  $108 \pm 9$  nm.

The addition of the new two materials to the old formula that used in previous work (Elsayed et al., 2009), F2 give  $64.5 \pm 2.07$  nm, which make a reduction in the particle size while F3 give the largest particle size  $280 \pm 8.51$  nm and maximize benefit protection for the formula.

**(Table 3.2): Particle size distribution of different preparation of chitosan-insulin PEC particles dispersed in oily system (expressed as mean  $\pm$  SD).**

<b><u>Formula</u></b>	<b><u>Particle size (nm)</u></b>
<b><u>F1</u></b>	<b><math>108 \pm 9</math></b>
<b><u>F2</u></b>	<b><math>64.5 \pm 2.07</math></b>
<b><u>F3</u></b>	<b><math>280 \pm 8.51</math></b>
<b><u>F4</u></b>	<b><math>85 \pm 2.53</math></b>