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**Title:** study of lysozyme amyloid fibril formation in the presence of taxol as a polyphenol inhibitor

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**Abstract:**

**Introduction:** Alzheimer disease and some other neurodegenerative diseases are occurred because of a kind of protein aggregation called amyloid fibrils. Since formation of amyloid fibrils is cytoxic, effort to inhibit this phenomenon is considerable. Some studies have shown that small molecules, polyphenols and peptides can act as fibril formation inhibitors. In the present study, taxol is used as a polyphenolic small molecule, in order to inhibit amyloid fibril formation of lysozyme.

**Methods:** Acidic pH is used to form amyloid fibrils of lysozyme. ThT fluorescence, Congo red absorbance, circular dichroism and atomic force microscope (AFM) are used to study formation of lysozyme fibrils without and with taxol in ratios of 10:1, 100:1 and 1000:1 (P:L).

**Results:** In the present of taxol, ThT fluorescence and Congo red absorbance are reduced. This reduction is in direction with increase of taxol concentration. Secondary structure of lysozyme is remained near to native in higher concentration of taxol. AFM study shows morphology of fibrils is disrupted in the presence of taxol.

**Conclusions:** In acidic pH, lysozyme structure become partial unfolded and hydrophobic core expose, that trigger aggregation of lysozyme. taxol interaction with partial unfold lysozyme, prevents interaction of hydrophobic parts of lysozyme and aggregation.

**Presentation:** Poster