Chantana Boonyarat et al., J Neurol Disord 2015, 3:3
http://dx.doi.org/10.4172/2329-6895.S1.002

OMICS International
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International Congress on
Neuroimmunology and Therapeutics
DoubleTree by Hilton Hotel San Francisco Airport, San Francisco, CA, USA

Physiological stress results in potent suppression of inkt cells following alpha-galactosylceramide mediated activation

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Beta-amyloid (Aβ) is a major pathogenic peptide for Alzheimer's disease (AD). The Aβ monomers aggregate into oligomeric and fibrillar forms which have been implicated as the toxic species inducing the neuronal dysfunction. Chalcone is known for its anti-oxidant and anti-inflammatory functions. Therefore, we investigated the effects of five chalcones extracted from *Dorris intica* on aggregation of Aβ peptides and neuroprotection. Five chalcones extracted from the fruit of *Dorris intica* included obovatachalcone, tunicatachalcone, ovalichalcone, pongamol, derrischalcone. The results exhibited that almost compounds except pongamol showed an ability to inhibit $A\beta_{1-42}$ aggregation assessed by Thioflvin T assay. Ovalichalcone exhibited the highest activity with inhibitory percentage of 75.1 at 50 μM. Molecular modeling studies revealed that these compounds interacted with Aβ1-42 side chain at salt bridge (Asp23 – Lys28) and hydrophobic region (residue 17 - 21) which are important for amyloid aggregation. For neuroprotection assessed by cell culture model, our results showed that all of these compounds could reduce neuronal death induced by $A\beta_{1-42}$ toxicity. The overall results indicated that the chalcones extracted from *Dorris intica* possess amyloid aggregation inhibitory action and neuroprotection. Thus, these compounds can be considered as a promising candidate for further pharmacological development in Alzheimer's therapy.

Biography

Chantana Boonyarat has completed her PhD from Mahidol University, Bangkok, Thailand. She is the lecturer at the faculty of Pharmaceutical Sciences, Khon Kaen University, Khon Kaen, Thailand. She has published more than 15 papers in reputed journals.

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