Effect of hydro-ethanolic extract of *Chamaemelum nobile* on cell proliferation and apoptosis of rat hippocampal neural stem cells in the oxidative stress condition

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Abstract

**Background and Objective:** Neural stem cells can differentiate to mature neural cells. Neural stem cells can migrate and repair the damage neural tissue. This study was done to determine the effect of hydro-ethanolic extract of *Chamaemelum nobile* on cell proliferation and apoptosis of rat hippocampal neural stem cells in the oxidative stress condition.

**Methods:** In this experimental study, neural stem cells were isolated from hippocampus of neonatal rat brain. Isolated neural stem cells were treated at 200, 400, 600, 800 and 1000 µg/ml of hydro-ethanolic extract of *Chamaemelum nobile* for 48h. Cells proliferation rate were evaluated by MTT assay. Anti-apoptotic property of hydro-ethanolic extract of *Chamaemelum nobile* evaluated using TUNEL assay method.

**Results:** Proliferation of neural stem cells were significantly increased in *Chamaemelum nobile* extract group in comparision with control (P<0.05). The rate of apoptotic cells were significantly reduced in *Chamaemelum nobile* extract group compared to control (P<0.05).

**Conclusion:** The hydethanolic extract of *Chamaemelum nobile* increases proliferation rate and reduces apoptosis of neural stem cells in the oxitative stress condition.

**Keywords:** Neural stem cell, *Chamaemelum nobile*, Cell proliferation, Apoptosis

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