

# Potential Therapeutic Effects of Olea Europaea (Olive) Fruit Oil as neuroprotective agent against neurotoxicity induced opioid

Dear Editor,

Morphine is used as analgesics medication to reduce pain by inhibiting transmission of pain impulses especially in spinal cord and modulation of central pain processing. Unfortunately, the increase abuse of opioids such as morphine or heroin often leads to various side effects such as addiction, tolerance and physical dependence. Hence, it demands for a need of pharmacotherapeutic interventions to overcome this issue (1).

One of the proposed mechanisms that lead to morphine dependency and withdrawal is oxidative stress. The mechanisms involved in the development of oxidative stress are formation of free radicals and reduce activity of antioxidant. Free radicals such as hydroxyl radical (OH) and nitric oxide (NO) can reducing enzymes like tripeptide glutathione (GSH) which function in neutralizing these oxidative agents in normal cell regulation (2).

In the current study, we are trying to explore the ability of Olea Europaea (Olive) Fruit Oil to increase the antioxidant activity level subsequently alleviate morphine dependence and withdrawal. Recent research shown that olive fruit oil contains phenolic compound which have higher antioxidant properties (3). Phenolic compound has the ability to increase radical scavenging activity by eliminating the formation of free radicals. Oxidative stress can be reduced when the free radicals' concentration in the cell is alleviated (4).

As far as we concern, there is no molecular study have been done yet using olive fruit oil to protect DNA damage caused by oxidative stress induced morphine. Better understanding on the effect

of olive fruit oil on oxidative stress produced by olive to morphine dependency and withdrawal need to be further explored especially on the cellular and molecular level.

**Shariff Halim**<sup>1,2</sup> 

**Umami Umaimah Ismail**<sup>1,2</sup>

<sup>1</sup> International Medical School, Management & Science University, University Drive, Off Persiaran Olahraga, 40100 Shah Alam, Selangor, Malaysia

<sup>2</sup> Addiction Interest Group (AIG), International Medical School, Management & Science University, University Drive, Off Persiaran Olahraga, 40100 Shah Alam, Selangor, Malaysia.

\* Corresponding author: Shariff Halim

E mail: [drhalim\\_shariff@msu.edu.my](mailto:drhalim_shariff@msu.edu.my)

## References

1. Flemming K. The use of morphine to treat cancer-related pain: a synthesis of quantitative and qualitative research. *J Pain Symptom Manage.* 2010; 39(1):139-54.
2. Skrabalova J, Drastichova Z, Novotny J. Morphine as a Potential Oxidative Stress-Causing Agent. *Mini Rev Org Chem.* 2013; 10(4):367-72.
3. Kouka P, Chatzieffraimidi GA, Raftis G, Stagos D, Angelis A, Stathopoulos P, Xynos N, Skaltsounis AL, Tsatsakis AM, Kouretas D. Antioxidant effects of an olive oil total polyphenolic fraction from a Greek Olea europaea variety in different cell cultures. *Phytomedicine.* 2018; 47:135-42.
4. Mori T, Ito S, Matsubayashi K, Sawaguchi T. Comparison of nitric oxide synthase inhibitors, phospholipase A2 inhibitor and free radical scavengers as attenuators of opioid withdrawal syndrome. *Behav Pharmacol.* 2007; 18(8):725-9.