Review

Memory enhancer & improve mood in Alzheimer's disease

Saffrotin

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human psychopharmacology Clin Exp 2014; 29: 351–359.

Comparing the efficacy and safety of Crocus sativus L.with Memantine in patients with moderate to severe Alzheimer's disease: a double-blind randomized clinical trial

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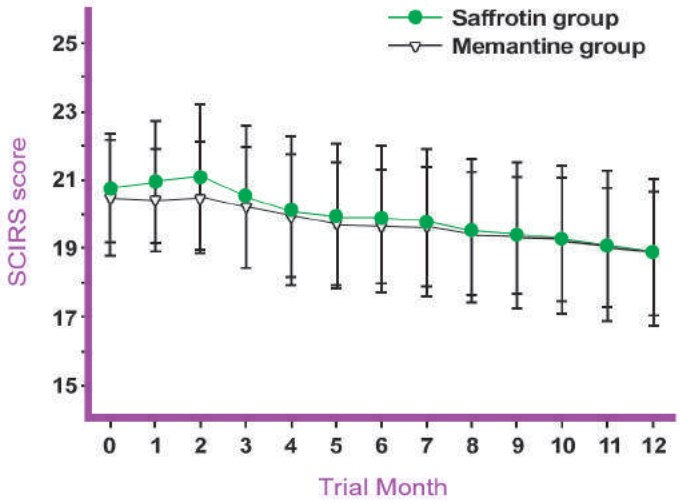
Abstract

Objective: Limited pharmacological options are available for the management of Alzheimer's disease (AD) in severe stages. Cognitive enhancing properties of ***Saffron***, the dried stigma of Crocus sativus L., have been evidenced in different studies. We aimed to compare the efficacy and safety of Saffron extract versus Memantine in reducing cognitive deterioration of patients with moderate to severe AD.

Methods: In this randomized double-blind parallel-group study, 68 patients with moderate to severe AD (Mini-Mental State Examination score of 8–14) received ***Memantine - Ebixa®, Ebixa, Valby, Denmark -*** (20 mg/day) or SAFFROTIN®,Impiran, Tehran, Iran, (30mg/day) capsules for 12 months. Participants were evaluated every month by Severe Cognitive Impairment Rating Scale (SCIRS) and Functional Assessment Staging (FAST) in addition to recording the probable adverse events.



The results of this trial showed that the efficacy of ***SAFFROTIN*** ® can be compared with ***Ebixa*** ® in reducing the cognitive deterioration in patients suffering from **moderate to severe AD.**

Fig. 1. Comparison of Severe Cognitive Impairment Rating Scale scorees changes [mean (SEM)] over time between the two study groups .

Results: Both treatment groups showed similar outcomes as demonstrated by insignificant effect for time × treatment interaction on **SCIRS scores** [F(2.95, 194.78) = 2.25, p = 0.08]. There was no significant difference between the two groups in the scores changes from baseline to the endpoint on SCIRS (p = 0.38) and FAST (p = 0.87). The frequency of adverse events was not significantly different between the two groups as well.

Conclusion: In addition to its favorable safety profile, 1-year administration of **SAFFROTIN** capsules showed to be **comparable with Memantine** in reducing cognitive decline in patients with **moderate to severe AD**.

Journal of Clinical Pharmacy and Therapeutics (2010)

Saffron in the treatment of patients with mild to moderate Alzheimer's disease: a 16-week, randomized and placebo-controlled trial

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Abstract

Objective: The goal of this study was to assess the efficacy of ***saffron*** in the treatment of mild to moderate AD.

Methods: Forty-six patients with probable AD were screened for a 16-week, double-blind study of parallel groups of patients with mild to moderate AD. The psychometric measures, which included AD assessment scale-cognitive subscale (**ADAS-cog**), and clinical dementia rating scale-sums of boxes (**CDR-SB**) , were performed to monitor the global cognitive and clinical profiles of the patients. Patients were randomly assigned to receive capsule ***saffron*** 30 mg/day (15 mg twice per day) (Group A) or capsule placebo (two capsules per day) for a 16-week study.

This study indicates that the **SAFFROTIN** is useful for the treatment of patients with mild to moderate AD as shown by improvements in both the **ADAS-cog** and **CDR-SB** measures.

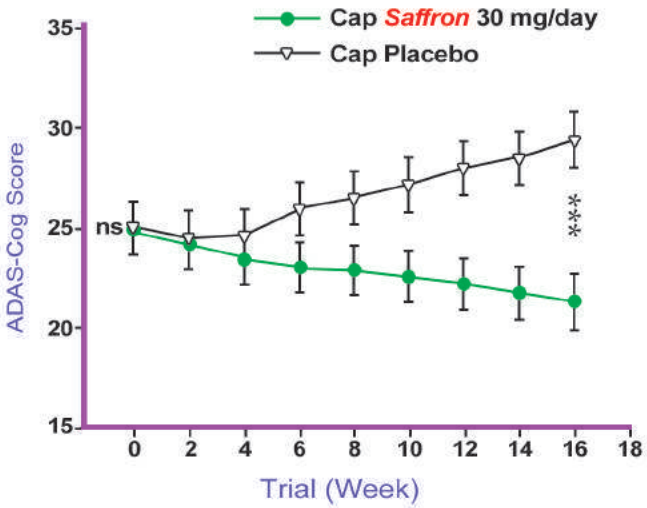

Fig.1. Mean ± SEM scores of the two protocols on the ADAS-cog score. ns, non-significant.

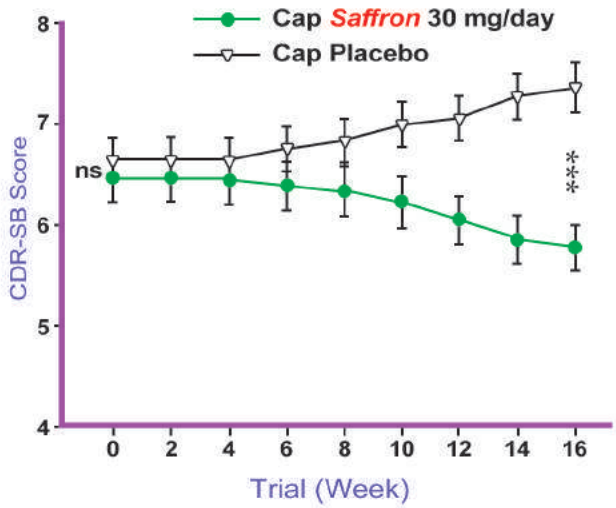

Fig. 2. Mean ± SEM scores of the two protocols on the CDR-SB score. ns, non-significant.

Results: After 16 weeks, ***saffron*** **produced a significantly better outcome on cognitive function than placebo** (ADAS-cog: F = 4.12, d.f. = 1, P = 0.04; CDR: F = 4.12, d.f. = 1, P = 0.04). There were no significant differences in the two groups in terms of observed adverse events.

What is new and conclusion: This double-blind, placebo-controlled study suggests that at least in the short-term, ***saffron*** **is both safe and effective in mild to moderate AD.**

Psychopharmacology (2010) 207:637–643

A 22-week, multicenter, randomized, double-blind controlled trial of Crocus sativus in the treatment of mild-to-moderate Alzheimer's disease

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Abstract

Objective: The purpose of the present investigation was to assess the efficacy of **C. sativus** in the treatment of patients with mild-to-moderate AD.

Methods: Fifty-four Persian-speaking adults 55 years of age or older who were living in the community were eligible to participate in a 22-week, double-blind study of parallel groups of patients with AD. The main efficacy measures were the change in the Alzheimer's Disease Assessment Scale—cognitive subscale and Clinical Dementia Rating Scale—Sums of Boxes scores compared with baseline. Adverse events (AEs) were systematically recorded. Participants were randomly assigned to receive acapsule ***Saffron*** 30 mg/day (15 mg twice per day) or ***Donepezil - Aricept*** from ***Pfizer*** - 10 mg/day (5 mg twice per day).

The clinical relevance of these findings was emphasized by the **improvements** seen in both the **ADAS-cog** and **CDR-SB** measures in the **SAFFROTIN** group.

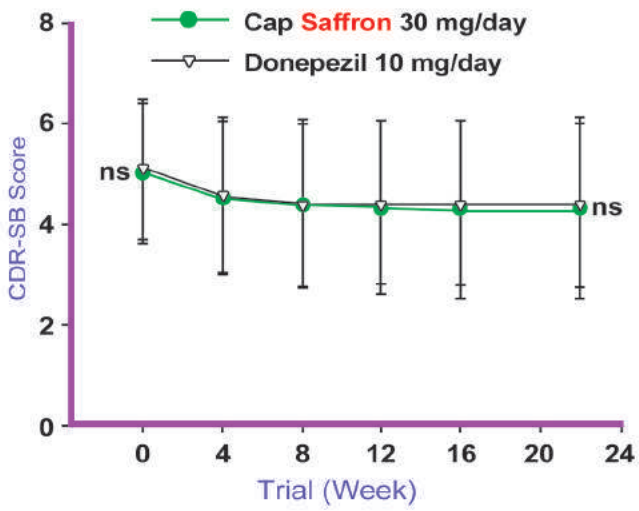

Fig. 1. Mean ± SD scores of the two protocols on the CDR-SB score. ns, non-significant.

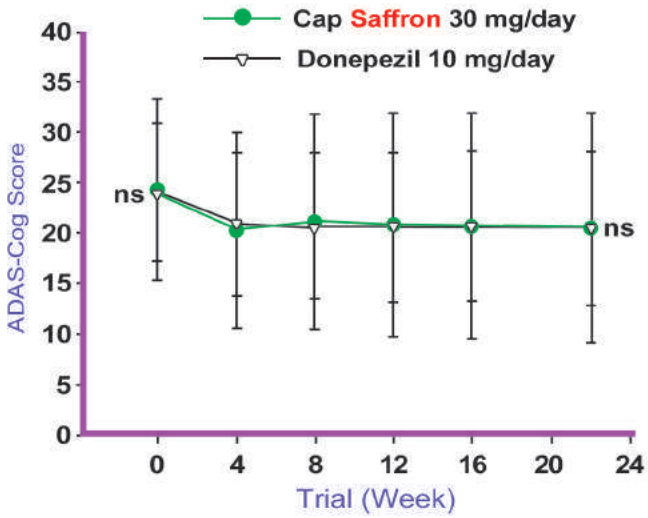

Fig. 2. Mean ± SD scores of the two protocols on the ADAS-cog score. ns, non-significant.

Results: ***Saffron*** at this dose was found to be effective similar to Donepezil in the treatment of mild-to-moderate AD after 22 weeks. The frequency of AEs was similar between Saffron extract and Donepezil groups with the exception of **vomiting**, which occurred significantly more frequently in the Donepezil group.

Conclusion: This phase II study provides preliminary evidence of a possible therapeutic effect of ***Saffron*** extract in the treatment of patients with mild-to-moderate Alzheimer's disease.

Saffrotin:

- **Memory enhancer & improve mood** in Alzheimer's disease
- As effective as ***ARICEPT (Donepezil)*** in mild to moderate Alzheimer's disease
- As effective as ***EBIXA (Memantine)*** in moderate to severe Alzheimer's disease
- Has no ***Anti cholinergic*** adverse effects
- **Anti depressant properties** of **Saffrotin** has been evidenced in **mild to moderate depression** in *Alternative Therapy* chapter in ***Comprehensive Kaplan 2009.***

Dosage : 30 mg/day

Indication : Mild to moderate & moderate to severe Alzheimer's disease

Saffrotin's mechanisms of action has been determined in numerous experimental and clinical researches :

1. ***saffron*** constituents **can interact with beta-amyloid (Aβ) peptides, inhibiting Aβ fibrillization and amyloid formation** (Papandreou et al., 2006; Ahn et al., 2011; Prasansuklab and Tencomnao, 2013)

2. Interestingly, ***saffron*** constituents have been shown to **decrease extracellular glutamate levels and exert antagonist effects on NMDA receptors** (Hosseinzadeh et al., 2008; Berger et al., 2011; Ohno et al., 2012), a function that can be compared with memantine's mechanism of action

3. It has been shown that ***saffron*** constituents can **moderately inhibit acetylcholinesterase activity and thereby increase the acetylcholine levels** (Geromichalos et al., 2012), another mechanism that further suggests beneficial effects for saffron in AD.

4. Antioxidant capability of ***saffron*** and its particular relation **to memory-enhancing effects of this compound have been well studied and recognized** (Papandreou et al., 2011; Serrano-Diaz et al., 2012)

5. **Antidepressant properties of *saffron* compounds have been evidenced in different clinical trials suggesting more advantages for this agent in improving some of the neuropsychiatric symptoms associated with AD** (Akhondzadeh et al., 2004; Akhondzadeh et al., 2005; Noorbala et al., 2005; Moshiri et al., 2006; Akhondzadeh Basti et al., 2007).

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