

ANTIOXIDANTS BUCKTHORN OIL, ADJUVANT IN MILD COGNITIVE DYSFUNCTION THERAPY

ANTIOXIDANȚII ULEIULUI DE CĂTINA, ADJUVANȚI ÎN TERAPIA DISFUNȚIEI COGNITIVE MEDII ȘI UȘOARE

**BODESCU Maria-Mădălina¹, BODESCU Oana Maria²,
TĂLMACIU M. ², HEREA Monica²**
e-mail: bodescumm@yahoo.com

Abstract: *Buckthorn oil contains many of the elements essential for health: vitamin C, vitamin E, B vitamins, vitamin A, calcium, magnesium and iron. All these precious ingredients are added and essential fatty acids omega-3, omega-6, omega-7 and omega-9. Buckthorn is a natural source of antioxidants and therefore its effectiveness to protect against oxidative stress has been shown by some researchers. The antioxidant properties of seabuckthorn were determined in vitro by Geetha, Sai Ram Singh Ilavazhagan, and Sawhney (2012). The research included 31 patients with mild cognitive impairment and medium recruit and private clinic of patients with psychiatric profile during 1 June -30 August 2014 following two lots First lot included 20 patients receiving specific medication and capsules antidemential seabuckthorn oil (900 mg) and lot II (control group) included 11 patients being treated with medication specific antidemential. I noticed a significant improvement in oxidative status by modifying SOD ($p = 0.001$) and cognitive status by modifying the MMSE ($p \leq 0.001$) reduced. Antioxidants are an important adjunct in the treatment of mild cognitive impairment and media.*

Key words: *seabuckthorn antioxidants, oxidative stress, cognitive dysfunction, Buckthorn oil, antioxidants, vitamin C, vitamin E,*

Rezumat: *Uleiul de cătină conține multe dintre elementele esențiale pentru sănătate: vitamina C, vitamina E, vitamine din complexul B, vitamina A, calciu, magneziu și fier. La toate aceste ingrediente prețioase sunt adăugați și acizi grași esențiali omega-3, omega-6, omega-7 și omega 9. Cătina este o sursă naturală de antioxidanți și, prin urmare, eficacitatea sa a proteja împotriva stresului oxidativ a fost demonstrat de către unii cercetători. Proprietățile antioxidante ale catinii au fost determinate controlat de către Geetha, Sai Ram Singh Ilavazhagan, și Sawhney. Cercetarea a inclus 31 de pacienți cu insuficiența renală ușoară cognitivă și recrută într-o clinică privată în intervalul 01 iun - 30 august 2014 în două loturi, primul lot a inclus 20 de pacienți care au primit medicație specifică și capsule de ulei de cătină*

¹ "Grigore T. Popa" University of Medicine and Pharmacy of Iasi, Romania

² University of Agricultural Sciences and Veterinary Medicine of Iasi, Romania

antidemență (900 mg) și lotul II (grupul de control) a inclus 11 de pacienți tratați cu medicamente specifice antidemență. Am observat o îmbunătățire semnificativă a stării oxidative prin modificarea SOD ($p = 0,001$) și statutul de cognitive prin modificarea MMSE ($p \leq 0.001$) ce s-a redus. Antioxidanții sunt un adjuvant important în tratamentul de insuficiența renală usoară cognitive și anti demență.

Cuvinte cheie: *catina, stres oxidativ, disfuncții cognitive, antioxidanți, vitamina C, vitamina E.*

INTRODUCTION

Sea buckthorn is a berry bush introduced into the culture of Romania. In the last 40 years has been shown that this fruit, harvesting difficult and highly perishable fresh, contains a number of valuable substances for human metabolism and an important role in regulating biological characteristics and chemical composition (Cakir, 2004).

Certain researches for this fruit plant have been made lately to present a special interest, pursuing the development of hybrid technologies for separation, concentration and purification of sea buckthorn extract, in order to obtain concentrated active ingredients with applications in food, pharmaceutical and cosmetic (Sa, 2007).

It has special activity in chronic hepatitis, urogenital disorders, neurological and psychiatric disorders. In the specific literature highlights the exceptional work and the role anemic stagnation and regression of various eye diseases (hemeralopia, presbyopia, cheratomalacie, myopia, astigmatism, hyperopia, glaucoma, cataracts) due to its high in beta-carotene (Folstein M.F *et al.*, 1975 Centenaro *et al.*, 1977).

For external use, use in dermatological disorders (psoriasis), atopic disorders and inflammatory ENT component in the topical treatment of eczema, burns, thermal and chemical frostbite, allergodermia, slow wound healing. It is the only known natural protective activity against solar radiation or other nature (Ecotech, 2010). Concentrate active principles are used with spectacular results in geriatrics, treat depression, Parkinson's disease, tumors, adenomas and leukemia (Ulian, 2009).

MATERIAL AND METHOD

The research included 31 patients with mild cognitive impairment patients recruited from the profile private psychiatric clinic during 1st June -30th August 2014 following two groups. Group I included 20 patients receiving medication specifically antidemential and oil capsules Seabuckthorn (900 mg) and group II (control group) included 11 patients being treated with medication specific antidemential.

Evaluation of clinical and laboratory status and oxidative done for each patient before inclusion in the study and after 6 months.

The evaluations were carried out by medical history and laboratory evaluation which included: determining blood pressure, heart rate, dosage MMSE and SOD. Subject Inclusion criteria were:

- Disease known retrieval easy and moderate cognitive impairment (MMSE 25-20);

- the patients consent to participate in the study.

Exclusion criteria were represented

- Retrieval disease absence;

- refuses from patients to participate in the study.

MMSE test is the most common tool used to assess cognitive function. Folstein MMSE was developed in 1975 to assess the mental state of psychiatric patients and to differentiate the origin of their organic or functional pathology.

RESULTS AND DISCUSSIONS

The results of the comparative analysis of cognitive status and oxidative status between the two groups at the beginning of the study have revealed that there are no differences statistically significant $p > 0.05$ (Table 1).

Evaluation of cognitive and oxidative status in patients in group I

Table 1

Comparative analysis of cognitive status and oxidative status between the two groups

Levene's Test for Equality of Variances			t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
MMSE	,14	,70	Equal variances assumed	41	,943	-,020	,27	-,58	,54
			Equal variances not assumed	18,57	,945	-,020	,29	-,62	,58
SOD	,09	,76	Equal variances assumed	41	,655	-2,34	5,20	-12,86	8,17
			Equal variances not assumed	19,86	,660	-2,34	5,23	-13,26	8,58

Mean MMSE initial enrollment in the study was 22.55 ± 0.79 , the value being 13.9% higher than the average GI registered at 6 months, 25.6 ± 0.12 (Table

2), the difference between the two areas being highly significant (95% CI 0.11 to 0.70; $p = 0.009$) (Table 3).

Table 2

Mean of MMSE and SOD in patients in group I

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	MMSE before	22,5,5	31	,79	,14
	MMSE after	25,6	31	,69	,12
Pair 2	SOD before	359,74	31	15,27	2,74
	SOD after	404,66	31	13,59	2,44

a. LOT = LOT I

Table 3

Comparative analysis of cognitive status and oxidative status patients in group I before and after 6 months

		Paired Differences							
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
					Lower	Upper			
Pair 1	MMSE before - MMSE after	,40	,81	,14	,11	,70	2,80	30	,009
Pair 2	SOD before - SOD after	12,77	21,81	3,91	4,77	20,77	3,26	30	,003

The difference between the two environments is highly significant (95% CI 4.77 to 20.70; $p = 0.003$) (Table 4)

Table 4

Comparative analysis of cognitive status and oxidative status patients in group II before and after 6 months

		Paired Differences							
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
					Lower	Upper			
Pair 1	MMSE before - MMSE after	-,09	1,15	,33	-,82	,640	-,276	11	,78

Pair 2	SOD before - SOD after	5,25	20,02	5,78	-7,47	17,97	,908	11	,38
--------	------------------------	------	-------	------	-------	-------	------	----	-----

a. LOT = LOT II

Evaluation of cognitive status and oxidative patients in group II

Mean MMSE initial enrollment in the study was 22.47 ± 0.87 , the value being 5.01% higher than the average MMSE recorded 6 months, $23, 5 \pm 0.96$, the difference between two areas not significant (95% CI 0.82 to 0.64; $p = 0.078$)

Mean SOD initial enrollment in the study was 362.08 ± 15.44 of value being 5.09% higher than the average recorded 6 months sod of 380.18 ± 16.28 , the difference between two areas not significant (95% CI -7.44 to 20,717,970; $p = 0.038$).

The results of the comparative analysis of cognitive status and oxidative status between the two groups at 6 months from the beginning of the study have revealed that there are differences statistically significant $p < 0.05$ both when the mean MMSE scores, and the environment SOD (Table5).

Table5

Comparative analysis of cognitive status and oxidative status between the two groups after 6 month

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
MMSE	Equal variances assumed	,14	,00	-,072	41	,003	-,020	,27	-,58	,54
	Equal variances not assumed			-,069	18,57	,005	-,020	,29	-,62	,58
SOD	Equal variances assumed	,09	,01	-,449	41	,005	-,2,34	5,20	-12,86	8,17
	Equal variances not assumed			-,447	19,86	,005	-,2,34	5,23	-13,26	8,58

From studies made by various authors, return in the legs buckthorn juice is about 75%. It is worth noting that the seeds and peel results after extracting the juice can be dried to 10-12% moisture. These after-grinding can be subjected to oil extraction. The maximum amount of oil found in fruit peel and seeds.

It is to note that only the amount of vitamin C in sea buckthorn is 8 times higher than in peaches, 20 times higher than in the big tree, 80 times higher than in tomatoes, and 200 times higher than the amount of vitamin C contained in grapes. Therefore buckthorn is called the treasure of vitamin C.

CONCLUSIONS

I noticed a significant improvement in oxidative status by modifying SOD ($p = 0.001$) and cognitive status by modifying the MMSE ($p \leq 0.001$) reduced the studio group than the control group. Antioxds have an important role in the treatment of mild cognitive impairment.

Seabuckthorn is a natural reservoir of antioxidants and therefore its effectiveness to protect against oxidative stress has been shown by some researchers. The antioxidant properties of seabuckthorn and immunity are definite.

REFERENCES

1. **Cakir Ahmet, 2004**, -*Essential oil and fatty acid composition of the fruits of Hippophae rhamnoides L. and Myrtus communis L. from Turkey*. Bioch.System and Ecology 32: 809–816.
2. **Centenaro G., Capietti G., Pizzocaro F., Marchesini A., 1977** -. *The fruit of Sea buckthorn Hippophae rhamnoides as a source of vitamin C*. Atti Soc Ital Sci Nat Mus. Civ. Stor. Nat. Milano, 118: 371-378.
3. **Folstein M.F., Folstein S.E., McHugh P.R., 1975** - *Mini-Mental State: a practical method for grading the cognitive state of patients for the clinician*. J. Psychiatr Res. 12: 189–198
4. **Sa H., 2007** - *Catina farmacia completă din grădină*, Woodhead Publishing, no 11.
5. **Teng E.L., Chui H.C., 1987** - *The Modified Mini-Mental State (3MS) Examination*. J. Clin. Psychiatry.;48: 314-318.
6. **Ulian C., 2009** - *Catina, cel mai puternic antioxidant*, <http://www.aplr-doctorat.blogspot.com>
- 7.*** **ECOTECH (2010). Compoziția chimică a catinei**. International Conference: *Cooperation to Reduce Emissions. Analysis. Questions. Best Technologies and Practices*, Almaty, Kazakhstan, 03 november 2010.