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Letter to the Editor

Is Arachis Oil a Solvent Only, or Does it also Have an Effect on the Central Nervous System?

B. FARUK ERDEN, GÜNER ULAK, NEJAT GACAR AND SITKI ÖZDEMIRCI

Kocaeli University Medical School, Department of Pharmacology, Derince-41900 Kocaeli, Turkey

Peanut (*Archis hypogaea* L.) seed, an important oil crop (arachis oil) throughout the world, is grown in large quantities in Africa, India and China. The oil is used in many edible products, including shortenings, margarines and mayonnaise, as a cooking and frying oil and as a salad oil. Arachis oil contains fatty acids and antioxidants. It has been shown to be unexpectedly atherogenic in the diets of experimental animals (Chow 1992).

Moore et al (1993) have reported that 7-nitroindazole inhibits both rat- and mouse-brain nitric oxide synthase and has potent anti-nociceptive activity in the mouse without significantly increasing blood pressure. 7-Nitroindazole is currently a promising and popular agent in the search for novel therapeutic compounds. Arachis oil is used as a vehicle for 7-nitroindazole and as a vehicle, carrier or solvent for other chemical substances such as 17β-oestradiol, nandrolone decanoate, 1,25-dihydroxyvitamin D_3, acitretin and oestradiol benzoate. No data are available about the effects of this solvent on central nervous system function. In experiments involving 7-nitroindazole, only in the first study was saline used in six samples, as a control for arachis oil (Moore et al 1993).

Correspondence: F. Erden, Kocaeli University, Faculty of Medicine, Department of Pharmacology, Derince-41900, Kocaeli, Turkey.

It was shown that arachis oil had the same effect as saline, as we have previously shown (Stringer & Erden 1995).

In our experiments, 7-nitroindazole was dissolved in arachis oil (Sigma, St Louis, MO) by sonication and administered intraperitoneally. Interestingly, administration of arachis oil had a significant effect on the three different types of experimental model. This phenomenon was not noticed in previous experimental models because they were different from ours in that induction with another agent was needed. Arachis oil shortened the length of pentobarbital-induced sleep in mice (Table 1) (Erden et al 1997) and also seemed to effect strychnine- and pentylenetetrazole-induced seizures in mice (Table 2) (Erden et al 1996). Furthermore, it prolonged the time during which

Table 1. Effect of arachis oil on sleeping time in mice.

Group	Sleeping time (min)
Saline (12)	51 ± 5·5
Arachis oil (13)	33 ± 4·4*

The values are means ± s.e.m.; the number of animals is given in parentheses. All mice were injected with sodium pentobarbital (35 mg kg^{-1}, i.p.) 30 min after intraperitoneal administration of the tested drug. *$P < 0.05$, significantly different compared with result for saline.

Table 2. Effects of intraperitoneal arachis oil (0·1 mL (25 g)$^{-1}$) on various parameters of strychnine- (1·5 mg kg^{-1}, s.c.) and pentylenetetrazole- (85 mg kg^{-1}, s.c.) induced seizures.

Group	First myoclonic jerk (s)	Total convulsion time (s)	Survival time (s)	Mortality rate (%)
Saline + strychnine (17)	193·9 ± 12·7	44·5 ± 9·4	277·6 ± 26·8	100
Arachis oil + strychnine (18)	266·1 ± 13·8*	154·1 ± 50·8*	461·2 ± 68·3*	66·6*
Saline + pentylenetetrazole (17)	97·5 ± 11·2	66·4 ± 8·1	509·6 ± 100·1	70·6
Arachis oil ± pentylenetetrazole (16)	215 ± 16·8*	59·5 ± 10·8	691 ± 127·2	50

Results are means ± s.e.m.; the number of animals is given in parentheses. *$P < 0·05$, significantly different compared with result for saline.

Table 3. Effect of arachis oil on 'sleep time' after a challenge ethanol dose ($3\,g\,kg^{-1}$, i.p.) in mice.

Group	Sleeping time (min)
Saline (12)	$16 \pm 1{\cdot}9$
Arachis oil (14)	$44 \pm 5{\cdot}2$*

The values are means ● s.e.m.; the number of animals is given in parentheses. *$P < 0{\cdot}01$, significantly different compared with result for saline.

mice lost their righting reflex 'sleep time' after intraperitoneal injection of $3\,g\,kg^{-1}$ ethanol (Table 3) (Erden, unpublished observation). It is possible that the intraperitoneal injection of arachis oil could have a direct effect on the CNS or alter local circulation absorption or distribution, or both, of the subsequent intraperitoneal or subcutaneous injections. Moreover, it could change the metabolism or clearance, and thereby affect sleep duration or convulsion parameters. It is necessary to seek a better understanding of the effect of arachis oil after parenteral administration.

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