

# Haematological Changes in Albino Rats fed on Aspirin and Nigella Sativa in Albino Rats for six weeks duration

AKHTAR MUNIR, KHALID QAYYUM\*, MUHAMMAD FAROOQ\*\*

## ABSTRACT

Ninety albino rats were selected and were divided into six groups on the basis of different diets given. Control group (IA) was fed on synthetic diet and experimental groups (IIA, IIB, IIC, IID and IIE) were fed on 1 mg aspirin, 15mg, 30 mg, 45 mg Nigella Sativa per kg body weight respectively while IIE was given 30 mg NS and 1 mg aspirin/kg body wt. Blood samples were collected by heart puncture and different tests were done. APTT was reduced significantly in groups taking different concentration of NS when compared with control. Percentage of clot retraction was weak significantly in groups taking aspirin only when comparing with other groups.

**Key words:** Aspirin, Nigella sativa, albino rats

---

## INTRODUCTION

Nigella Sativa seeds are extensively used as medicine. The Hakeems prescribe it as diuretic, carminative and anthelmintic. It also considers to increase the menstrual blood flow and secretion of milk. The seed gives relief when bruised with vinegar and applied on pityriasis, Leucoderma, wring worm, eczema and alopecia. El-Dakhkhany (1983)<sup>1</sup> isolated a crystalline active principle from the essential oil of Nigella Sativa which later proved to be the dimmer of thymoquinone; he found that the carboxyl fraction isolated from the volatile oil was polythymoquinone and it possessed lower toxicity than thymoquinone itself.

Nigella Sativa seeds have been shown to posses significant anthelmintic effect in young children<sup>2</sup>. Salomi et al (1992)<sup>3</sup> reported that it had cytotoxic effect by administering in two patients with malignant ulcer on the face. It produces significant shortening of clotting, bleeding, thrombin, prothrombin and partial thromboplastin times in rats<sup>4,5</sup>. Nigella Sativa has also been administered for the treatment of jaundice<sup>6</sup>. Seeds of Nigella sativa are given with butter and milk to cure obstinate hiccup. Seeds are employed as a purgative. They are also useful in indigestion, loss of appetite, fever, diarrhea, and puerperal disease etc<sup>7,10</sup>. NS produced significant shortening in kaolin cephalin

clotting time. Ether extracts and fatty extract produced a significant shortening in bleeding time<sup>(4,9)</sup>.

## SUBJECTS AND METHODS

Ninety male albino rats were divided into different groups on the basis of diet (Table1). Blood sampling was done at 6<sup>th</sup> week. Special investigation (PT, APTT, clot retraction and fibrinogen) were performed.

Table I: Groups of animals based on diet

Groups	No. of animals	Type of diet/rat twice a day
I (Control)	15	10gms (synthetic diet)
Experimental group (II)	75	
IIA	15	0.2 mg aspirin & 10g synthetic diet
IIB	15	3.0 mg Nigella Sativa & 10g synthetic diet
IIC	15	6.0 mg Nigella Sativa & 10g synthetic diet
IID	15	9.0 mg Nigella Sativa & 10g synthetic diet
IIE	15	0.2 mg aspirin + 3 mg Nigella sativa & 10g synthetic diet

---

Department of Pathology, Kohat Institute of Medical Sciences, Kohat

\*Assistant Professor ENT, Kohat Institute of Medical Sciences, Kohat

\*\*APMO Services Institute of Medical Sciences/Services Hospital, Lahore

Correspondence to Dr. Akhtar Munir, Assistant Professor Pathology

## RESULTS

The results of different groups at 6<sup>th</sup> week are shown in Table 2 .

Table 2: Specific haematological investigations in experimental and control groups at 6<sup>th</sup> week

Groups	Clot Retraction (%)	PT (Second)	APTT (Second)	Fibrinogen (mg/dl)
I (Control)	54±1.41 (50-54)	12.2±0.84 (11-13)	34.2±1.48 (32-36)	244±76.6 (175-375)
IIA (0.2 mg aspirin)	51.1±1.7 (50-56)	12.0±1.0 (11-13)	35±3.0 (32-40)	234±10.2 (160-180)
IIB (3 mg N.S)	55.0±11.8 (50-57)	11.8±0.8 (11-13)	29.2±1.92 (28-32)	243-77.7 (117-375)
IIC (6mg NS)	56.6±4.99 (52-62)	12.0±1.0 (11-13)	30.0±1.4 (28-32)	231±27.7 (175-230)
IID (9 mg NS)	57±4.2 (52-62)	12.2±1.3 (11-13)	29.6±1.8 (27-32)	239±22.2 (155-210)
IIE (0.2 mg aspirin+3mg NS)	56.4±1.7 (54-58)	12.6±1.1 (11-14)	33.8±3.7 (30-40)	217±73.6 (160-340)
Statistical Analysis				
IA/IIA	S	NS	NS	NS
IA/IIB	NS	NS	HS	NS
IA/IIC	S	NS	HS	NS
IA/IID	S	NS	HS	NS
IA/IIE	HS	NS	NS	NS

## DISCUSSION

**Clot retraction:** At 6<sup>th</sup> week when comparing control group with group taking aspirin only (IIA), there was decreased percentage of clot retraction and the difference was significant ( $p < 0.05$ ) statistically. While comparison of groups IIA vs IIB, IIA vs IIC, IIA vs IID and IIA vs IIE showed increase percentage of clot retraction in groups taking different conc. of NS and the difference was significant ( $p < 0.05$ ) statistically.

**Prothrombin Time:** The mean±SD values of PT in experimental groups IIA, IIB, IIC IID & IIE were comparable with that of control groups. When comparing experimental groups to one another, non-significant difference observed.

### Activated Partial Thromboplastin Time:

The mean±SD values of APTT in experimental groups taking NS only was significantly ( $p < 0.05$ ) decreased when comparing with control group (IA) at 6<sup>th</sup> week but comparable in groups taking aspirin at 6<sup>th</sup> week. This decreased APTT in groups containing *Nigella sativa* may be due to effect of NS on factors involved in the intrinsic coagulation pathway. Such results are in conformity with the study of Owen et al (1975)<sup>9</sup> & Ghoneum et al (1982)<sup>4</sup> who also observed similar changes.

**Fibrinogen Level:** The mean±SD values of fibrinogen in experimental groups IIA, IIB, IIC IID and IIE was comparable when comparing with control group (IA) at 6<sup>th</sup> week. The comparison between different experimental groups to each other also showed non-significant difference statistically.

## REFERENCES

1. El-Dakhkhany M. some pharmacological properties of some constituents of *Nigella sativa* seeds. *Planta Med* 1983; 426-28.
2. Akhtar MS, Riffat S. Field trial of *saussurea lappa* roots agasint nematodes and *Nigella sativa* seed against cestodes in children *JPMA* 1991; 41: 185-87.
3. Salomi MJ, Nair SC, Varghese CD. Antitumour principles from *Nigella sativa* seeds. *Cancer Letter* 1992; 63(1):4-46.
4. Ghoneim MT, El-Gindy, El-Aami R, Shouky RE, Yaseen S. Possible effects of some extracts of *Nigella sativa* seeds on blood coagulation system and fibrinolytic activity. *Proceeding of the 2<sup>nd</sup> International Conference of Islamic Medicine, Kuwaits, 1982; 528-35.*
5. Blatter E. Caius JF, Mhaskar KS. *Indian Medicinal plants 2<sup>nd</sup> Ed.* Allahabad, India Lalit Mohan Basu, 1984; 11-2.
6. Veed G. Ragnstrom J, Nilson J. Role of lipids and antioxidative factors for development of atherosclerosis. *Am J Cardiol* 1993; 71:15B-19B.
7. Bavaprakash N. *Ayurvedic Medicine.* Lahore: Idara Matbuaat Sulemani 1992; 524-27.
8. Owen CH, Walter Bowie EJ, Thompson JH. *Haemostasis and Blood Coagulation.* In: *The diagnosis of Bleeding disorders.* 2<sup>nd</sup> Ed. Little Brown and Co., Boston 1975, 111.
9. Ghaznavi K. *Tibbe-Nabvi, Lahore: Al-Faisal Ghaznavi street urdu Bazar* 1997: 25-35.
10. Rampuri Allama Hakim Molvi Najmul Ghani. *Tibbi Encyclopaedia* 1993: 388-391.

