

Nigella sativa Linn. and Lower Urinary Tract Infection Treatment

Amalia Tri Utami*

Maulana Malik Ibrahim State Islamic University Malang, Indonesia

*Corresponding author: Amalia Tri Utami, Maulana Malik Ibrahim State Islamic University Malang, Indonesia; E-mail: dutabesar7@gmail.com

Received date: September 06, 2017; Accepted date: September 18, 2017; Published date: January 25, 2018

Copyright: © 2018 Utami AT, This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Abstract

Lower urinary tract infection (UTIs) is very common diseases that occur in at least 60% of women. UTIs are caused by microorganisms, commonly Gram negative bacteria. *Escherichia coli* (*E. coli*) play role a most cases. Recurrent urinary tract infection is very challenging because the main treatment is long term antibiotic. Another way to avoid this risk is by using *Nigella sativa* Linn. *Nigella sativa* Linn. is regarded as one of the greatest healing medicine in Islam. The aqueous and oil extracts of the seeds have been shown to possess antitumor, anti-diabetic, cardiovascular activity, antioxidant, anti-inflammatory, analgesic and antimicrobial activities. Crude extracts of *Nigella sativa* Linn. were tested for antimicrobial activity against bacterial isolates.

Keywords UTIs; Microorganism; *Escherichia coli*; Antimicrobial

Methods

The capsules contain 500 mg of *Nigella sativa* Linn. Versus placebo capsules were given to woman aged 18 to 25 years old. A total of 30 women with symptomatic UTIs were randomized to *Nigella sativa* Linn. or placebo in 3 treatment arms of A- *Nigella sativa* Linn. 3 times daily (10), B-*Nigella sativa* Linn. Breakfast then placebo at lunch and dinner (10), and C-placebo 3 times daily (10). Every week in a month, the woman were asked about the symptoms (Figure 1 and Table 1).

Results & Discussion

In later studies, seed extracts of *Nigella sativa* Linn. were found to inhibit the growth of *Escherichia coli*, *Bacillus subtilis* and

Streptococcus feacalis [1,2]. *Nigella sativa* Linn. seeds caused concentration-dependent inhibition of Gram-positive *Staphylococcus aureus* and Gram-negative *Pseudomonas aeruginosa* and *E. coli* and a pathogenic yeast *Candida albicans*. The extract showed antibacterial synergism with streptomycin and gentamicin and showed additive antibacterial action with spectinomycin, erythromycin, tobramycin, doxycycline, chloramphenicol, nalidixic acid, ampicillin, lincomycin and sulfamethoxazole-trimethoprim combination. Interestingly, the extract successfully eradicated a non-fatal subcutaneous staphylococcal infection in mice when injected at the site of infection [3]. Recently, crude extracts of *N. sativa* showed promising antimicrobial effects against bacterial isolates with multiple resistances against antibiotics [4]. The most effective extracts were the crude alkaloid and water extracts. The seeds are characterized by a very low degree of toxicity (Ali and Blunden, 2008).

Woman	Bacterial Concentration								
	Group A			Group B			Group C		
	Before	On going	After	Before	On Going	After	Before	On Going	After
1	2.4 X 10 ⁵	1.5 X 10 ³	2 X 10	2.4 X 10 ⁵	1.5 X 10 ⁵	6 X 10 ³	2.7 X 10 ⁵	1.7 X 10 ⁵	1.6 X 10 ⁵
2	1.7 X 10 ⁵	8 X 10 ²	1 X 10	2.8 X 10 ⁵	1.1 X 10 ⁵	7 X 10 ³	2.2 X 10 ⁵	1.8 X 10 ⁵	1.5 X 10 ⁵
3	3.2 X 10 ⁵	1.5 X 10 ⁴	2 X 10	1.7 X 10 ⁵	1.2 X 10 ⁵	5 X 10 ³	2.3 X 10 ⁵	1.9 X 10 ⁵	1.5 X 10 ⁵
4	2.1 X 10 ⁵	1 X 10 ³	3 X 10	1.9 X 10 ⁵	1.4 X 10 ⁵	6 x 10 ³	2.5 X 10 ⁵	1.2 x 10 ⁵	1.1 X 10 ⁴
5	1.6 X 10 ⁵	2 X 10 ²	4 X 10	1.8 X 10 ⁵	1.5 X 10 ⁴	4 X 10 ³	1.7 X 10 ⁵	9 X 10 ⁴	3 X 10 ⁴
6	2.7 X 10 ⁵	7 X 10 ²	7 X 10	1.7 X 10 ⁵	3 X 10 ³	6 X 10 ²	1.6 X 10 ⁵	7 X 10 ³	8 X 10 ³
7	2.2 X 10 ⁵	3 X 10 ²	5 X 10	2.2 X 10 ⁵	6 X 10 ³	7 X 10 ²	1.4 X 10 ⁵	9 X 10 ³	9 X 10 ²
8	1.9 X 10 ⁵	1 X 10 ⁴	2 X 10	2.3 X 10 ⁵	9 X 10 ³	3 X 10 ²	1.2 x 10 ⁵	8 X 10 ³	7 X 10 ³
9	2.8 X 10 ⁵	1.7 X 10 ³	8 X 10	2.1 X 10 ⁵	7 X 10 ³	8 X 10 ²	1.3 X 10 ⁵	5 X 10 ³	5 X 10 ³
10	2.3 X 10 ⁵	7 X 10 ²	4 X 10	2.9 X 10 ⁵	1.7 X 10 ⁴	1 X 10 ²	1.4 X 10 ⁵	6 X 10 ³	1.5 X 10 ³

Mean	2.29×10^5	3.09×10^3	3.5×10	2.18×10^5	5.77×10^4	3.05×10^3	1.97×10^5	7.85×10^4	5.23×10^4
------	--------------------	--------------------	-----------------	--------------------	--------------------	--------------------	--------------------	--------------------	--------------------

Table 1: Bacterial Concentration on Culture Urine * CFU/ml.

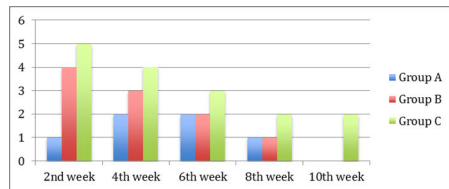


Figure 1: The data was analyzed. Using the P-value approach: The p-value is $p=0.0961$ and since $p=0.0961 \geq 0.01$, It is concluded that the null hypothesis H_0 is not rejected. Therefore, there is not enough evidence to claim that some of the population medians are unequal, at $\alpha=0.01$ significance level.

Conclusion

These data suggest there are protective effects of *Nigella sativa* Linn. against symptomatic urinary tract infections.

References

1. Ali BH, Blunden G (2008) Pharmacological and toxicological properties of *Nigella sativa*. *Phytother Res* 17(4): 299-305.
2. Saxena A, Vyas K (1986) Antimicrobial activity of seeds of some ethnopharmacinal plants. *J Econ Taxon Botany* 8: 291-299.
3. Hanafy MS, Hatem ME (1991) Studies on the antimicrobial activity of *Nigella sativa* seed (black cumin) *J Ethnopharmacol* 34: 275-278.
4. Morsi NM (2000) Antimicrobial effect of crude extracts of *Nigella sativa* on multiple anti-biotics-resistant bacteria. *Acta Microbiol Pol* 49:63-74.