

# Evaluation of Efficacy of Anti-Lice Shampoo

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## Author's Contribution

All the authors contributed significantly to the research that resulted in the submitted manuscript.

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## ABSTRACT

**Objective:** To investigate the therapeutic effects of the herbal medicated anti-lice shampoo a product of Herbion pharmaceutical on the head lice infestation.

**Method:** We collect the patients from government hospital Sharafigoth using the questionnaire and seeing the inclusion and exclusion criteria. Patients were advice to take bath with shampoo twice weekly. The instruction of using shampoo was explained to the patients briefly. After 4 week's treatment we take the follow up and record the data.

**Result:** Anti-lice shampoo is very effective in treatment of lice. Total 43 patients were treated with the anti-lice shampoo. Out of 100% (n=43)88.4% (n=38) shows marked improvement, 7% (n=3) shows moderate improvement and 4.7% (n=2) shows mild improvement.

**Conclusion:** Herbion anti-lice shampoo is very effective in treating the lice infestation.

## INTRODUCTION

Incursion with head lice (*Pediculus-human us capitis*) is common, it is widespread worldwide, and affects persons of all socioeconomic circumstances and ages, but is more recurrent between the ages of 3 and 11 years [1,2]. Head lice are not usually concomitant with morbidity apart from secondary bacterial infections, however, they may cause social degradation, hindrance, awkwardness and lost productivity among all involved [1,3]. While the cost of head lice infestation in Australia is unknown, the yearly cost in the USA is assessed to be the US \$1 billion [4]. The global control of pediculosis in both developing and developed countries has been vulnerable not as a result of socioeconomic factors but because of the inappropriate use of topical insecticides, and growing insecticide resistance to commonly used pediculicides including lindane, malathion, and permethrin [5-8].

In Australian schools, head lice infestation rates of up to 35.1% have been stated [9,10], with head lice infestation the third most frequently stated epidemic in day care centers after diarrhoea and conjunctivitis [9]. The mode of transmission of head lice is the subject of some dispute, and thoughts are split on the importance of various mechanisms [11]; however, the main source of infestation occurs at the classroom level, indicating gathering or close head-to-head contact as the primary cause [12]. Unfortunately, successful treatments are usually short lived as reinfestation is almost guaranteed if associates of the treated person (and their associates) are not treated alongside [13]. Discouraging head lice transmission is thus significant to reduce infestation chances. There are numerous products comprising essential oils and other chemicals which can be applied to the hair and claim to discourage head lice transmission. Such products are accessible from health shops, barbers,

supermarkets and over the counter from most pharmacies. While these treatments sound appealing, the effects linked with these products are only presumed, and very few studies on the effectiveness of products to discourage head lice spread have been published. Head louse infestations increase recently in child yards, primary schools, and even among children up to the age of 15 years. This development has different backgrounds. On another hand, resistance to louse infestation against insecticides is increasing [14-25]. Furthermore, the groups of kids in the institutions have been enlarged, so that there are closer and more often hair-to-hair contacts among the individuals [22, 26-31]. In addition, the high costs of anti-lice products (especially in the USA, where treatments cost the US \$150 upwards [32]; make people hesitate to buy and use effective products at an early stage of the louse infestation, so that infestations spread from these heads leading finally to repeated “ping pong infestations” among group members. And there are also several products—not only from the “green” side—which have no or only a reduced efficacy and thus leave survivors, which become the progenitors of new generations. Even if products are effective, the success of the control measures may not be reached, if these products are wrongly used or in an under-dosage application. Besides all of this, the biggest enemy of a successful “battle” against the nasty bloodsuckers is the fact that people believe that having lice is identical with being dirty and caused by an unhygienic lifestyle. Since they fear to be “mobbed,” many women hesitate or neglect to inform the mothers of the comrades of their kids that there are lice. This has the consequence that ping-pong re-infestations persist for long in a group of neighbors and/or in child yards and primary schools. Therefore, sound information and the development of safe and efficacious products are badly needed. This research article is focus on the complete cure of head lice by herbal anti-lice shampoo.

### **Etiologic Agent**

Prime adult louse 2-3 mm long (the size of a sesame seed), has six legs, and is usually tan to white in color gray. The female lives up to 3-4

weeks, and once mature, can lay up to 10 eggs per day. These small eggs and respond firmly to the hair shaft base in nearly 4mm of the scalp with a glue-like substance produced by the louse. Eggs are camouflaged to life with pigment to match the color of hair a person is often more easily seen in the back of my hair. Empty egg casings (nits) are easy to visualize because it appears white against the darker hair. (Note that some experts refer to “white”, also features a nymph development and use of “lice” to refer to the covers of empty egg, and others use the term “lice” to refer to all of the eggs and empty casings). Eggs are incubated by body heat and usually what hatch in 8-9 days but can be hatched 7-12 days vary depending on whether the climate was the ocean is hot or cold. Once on the breeding, nymph leaves the shell casing and passes through a total of 3 nymph stages (stage) in the next 9-12 days and then reach adulthood. Louse female can mate and begin laying eggs viable approximately 1.5 days after he became an adult. If untreated, this session may repeat itself almost every 3 weeks [33]. Lice feed by injecting small amounts of saliva with vasodilatory properties and prevent blood clotting and sucking small amounts of blood from the scalp every few hours. Itching is consequences of the constituents of saliva. Itching usually takes 4 to 6 weeks to develop because it takes the time to activate the sensitivity reaction to the saliva. Head lice cannot survive away from the scalp at room temperature [34].

### **Clinical Disease**

Head lice, unlike body lice, do not transmit any disease agent [35-40] itching can develop in them aware of the individual. Rarely, it may cause scratching herpes or other skin infection, which can lead to domestic infestation glands.

### **Epidemiology**

Prevalence of head lice in preschool and school going children is high in the United States. Parents and siblings of infected people are also at increased risk. In some remote communities in Central and South America, nearly all residents have at least a few lice [41]. President in Australia, and the spread in schools is 13%, with a

group and between schools from 0% to 28% [42]; in Brazil, the prevalence of 43% in one of the slums and 28% in village [43] fishing; in China, and the prevalence is 14%, with a range from 0% to 52% [44]; in the United Kingdom, and the spread is 2%, with the annual incidence of 37% [45] head lice infection is not affected significantly by hair length or brush frequently or shampoo. However, in the United States, where daily brushing is routine for many, infected individuals rarely have more than a dozen lice neighborhood, while individuals in cultures with different grooming practices are often a hundred or more live lice.

### **Transmission**

Lice cannot hop or fly, Crawling. However, there are reports that combing dry hair can accumulate static electricity enough to take out physically and adult lice from the scalp infected more than 1 M [46] transport in most cases occurs through direct contact with the head of the spread individual [47] indirect spread it through contact with personal belongings of the individual patient (combs, brush, hats) is much less likely, but the lice rarely [48]. Might occur found on combs likely to be injured or dead [49], louse healthy is not likely to leave a healthy head of what did not there was heavy infestation [50]. this is also illustrated two studies from Australia. In one study, examination of the carpet on the 118-story classroom no lice found in spite of more than 14,000 live lice found on the heads of 466 children using these classrooms [51]. in the second study, it was found lice live on only 4% of pads used before volunteers infested [52] Thus, it should be the main focus of the activities of control to limit the number of lice in the head and to minimize the risk of contact and face-to-head.

### **Diagnosis**

The gold standard test for diagnosis of head lice is to find live lice on the head, but it is difficult because lice evade light and can crawl rapidly. Studies have shown that using of lice comb is fast and effective method for diagnosis [53]. Some studies show that use of lubricant (oil, water, etc.) is good to decrease the rapid movement of lice and increase the eradication chances [54] tiny

eggs may be easier to detect, especially in the nape of the neck and behind the ears, 1 cm of the scalp. It is important not to confuse the eggs or nits with dandruff, gives hair, hair or other debris, all of which have been misdiagnosed as nits. Nits are more problematic to remove because they are firmly attached to the hair shaft. It is also important not to confuse live eggs with dead or empty capsules eggs (nits). Many presumed "lice" and "nit" presented by doctors, nurses, teachers and parents to a laboratory for identification were found to artifacts such as dandruff, drops of hairspray, scabs, dirt or other insects (e.g., aphids blown by the wind and caught in the hair) [55] generally eggs found more than 1 cm of the scalp are unlikely to be feasible, although some researchers in warmer climates have found viable eggs further from the scalp [33] a viable egg develop an "eye point" that is evident on microscopic examination several days after being laid [33].

### **Prevention**

It is likely unachievable to prevent all head lice infestations. Children of young age come into head to head contact with each other frequently. It is judicious for children to be trained not to share personal items such as combs, brushes, and hats. However, no one should decline to wear defensive headgear because of fear of head lice. In surroundings where children are together, adults should be conscious of the signs and symptoms of head lice infiltration, and infested children should be treated punctually to minimize spread to others.

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## **METHODOLOGY**

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### **Test Persons**

43 children had been selected (according to the intensity of louse infestation) from a Government hospital sharafigoth. The children have consisted exclusively of girls with shoulder long hair (aging from 3 to 26 years).

### **Procedures of Treatment**

Since the hair of most children was sticky due to sandy inclusions, the mothers wettened the hair

before the testing. After wetting of the hair, the kids were dried with a towel. Then, the product, a Herbion anti-lice shampoo, was thoroughly applied by the mothers by covering all hair from the scalp to the very end of the hair. After that, the children had to wait for 10 minutes until the mothers washed the hair for 3–4 min with clear tap water. Then, the hair were combed for about 10–15 min with finely toothed lice comb, and the lice dropping down onto a white towel were collected inside a plastic petri dish (on white filter paper) for control with a stereomicroscope and/or magnification glass on movements or other signs of life.

## RESULTS

This study is conducted in government hospital sharafigoth. We collect the 43 patients the mean age of the patients was 16.79 with STD of 10.91 (Table 1). All patients were females. Out of 100% (n=43) 88.4% (n=38) shows marked improvement, 7% (n=3) shows moderate improvement and 4.7% (n=2) shows mild improvement (Table 2). Seeing these results our anti-lice shampoo is very effective in the treatment of lice infestation.

**Table 1. Statistics (Mean, Median and Std. Deviation).**

Gender	Age	Diagnosis	Outcome
Valid N	43	43	43
Missing	0	0	0
Mean	16.79		2.84
Median	15.00		3.00
Std. Deviation	10.919		.485
Minimum	4		1
Maximum	60		3

**Table 2. Outcomes.**

	Frequency	Percent	Valid Percent	Cumulative Percent	
Valid	Mild Improve	2	4.7	4.7	4.7
	Moderate Improve	3	7.0	7.0	11.6
	Marked Improve	38	88.4	88.4	100.0
	Total	43	100.0	100.0	

**Table 3. Gender.**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid F	43	100.0	100.0	100.0

**Table 3: Diagnosis**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Lice	43	100.0	100.0	100.0

## DISCUSSION

Head Lice infiltration is a common problem from historic time. Head lice are identified more than 10,000 years old, and today it is estimated that there are about 12 million cases of head lice in the United States each year [56,57]. *Pediculus humanus capitis* is the cause of lice infiltration. Head Lice are attracted to their hosts by a number of factors including humidity, temperature, and a combination of body odors and chemicals [58,59]. Head Lice are very particular as regards the selection of a new host and host transfer only when conditions are optimal [60]. A study

conducted by one Speared and associated tried to quantify the amount of blood that one head louse ingested during a single feed [61]. The value ranged from 0.0000387ml and 0.0000657 ml in female and male, respectively [61]. An effective product would benefit from a potential host by altering its skin scalp environment thus making the sub-optimal conditions for head lice. In such conditions, head lice are less likely to commit to a host transfer. Head Lice are still being colonized

successfully. With the growing global prevalence of head lice, the number of products that claim to discourage transmission of head lice available without a prescription has increased dramatically. However, the effects associated with these products only pretension, and published very few studies on the effectiveness of products to discourage transmission of head lice. Some in vitro studies have found that essential oils such as rosemary [58], lavender [62], piperonal [63,64], eucalyptus [58,65,66] and citronella [58] are promising candidates as compounds that discourage the transmission of head lice; However, the formulation suitable products for commercial use has not been studied. The components of some essential oils such as 1,8-cineol [66], anisole [65,66] and chavibetol [67] have also proved possible candidates. An in vitro study found that several products available on the market, including DEET did not show sufficient efficacy to discourage transmission of lice that was approved [68]. In one clinical trial published up to date, show slow-release formulation of citronella to be safe and effective in the prevention of transmission of head lice in children [59]. This study has shown that Herbion Anti-lice shampoo offers the best effectiveness and consistency of performance. Use of an effective product that discourages transmission head lice could significantly reduce the incidence of re-infestation, among other beneficial effects would reduce spending control head lice and time spent in the treatment and removing lice.

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## CONCLUSION

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Herbion anti-lice shampoo is very effective in the treatment of lice infestation.

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