

**INCREASING BEDBUG, *CIMEX LECTULARIUS*, INFESTATIONS  
IN KUWAIT**

By

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**Abstract**

Bedbug, *Cimex lectularius*, human infestations were reported in the State of Kuwait in the last 2 years. Eleven separate infestations from different localities were received at the Veterinary Laboratories indicating that bedbug is widespread in the State of Kuwait. There was circumstantial evidence to suggest the transfer of bugs with recent immigrants or used furniture. The spread of infestation can be attributed to the increase in migrant labor and their mobility inside the country. The increase in reported cases appears also consistent with a worldwide increase in bedbug infestations.

**Keywords:** Kuwait, *Cimex lectularius*, Bedbug, Hemiptera, Human infestation.

**Introduction**

The human bedbug, *Cimex lectularius*, is the most common species in temperate climates, and *C. hemipterus* in tropical climates. Adult *C. lectularius* range in size from 5 to 7 mm, while nymphs (juveniles) may be as small as 1.5 mm. *C. hemipterus* is somewhat longer than *C. lectularius*. The ranges of these species overlap, and bugs of different species may interbreed, though with limited success of viable offspring. Other species exist that use humans as incidental hosts and correct identification is important for determining the proper control procedures

and the potential vectoring of disease agents (Newberry, 1988).

The common bedbug, *C. lectularius* is a nocturnal temporary blood sucking ectoparasite that can feed on numerous hosts including humans, birds, bats and pets. This insect species is well adapted to living with humans in houses, hotels and other dwellings (Poorten and Prose, 2005). The occurrence of bedbug infestations diminished after the end of Second World War, with improved hygiene in developed countries and with the appearance of persistent insecticides, especially the Dichloro-Diphenyl-Trichloroethane, DDT (Mu-

mcuoglu, 2008). In the survey of insect fauna in the State of Kuwait, Al-Houty (1989) reported few samples of bedbugs in two places of the urban area in 1980's.

### **Materials and Methods**

In the last two years, bedbug samples from eleven separate infestations were brought to the Veterinary Laboratories by residents from the different localities including Farwaniya, Salmiya, Sulibiah, Shuwaikh, Jleeb, Khaitan and Al-Soura. Three samples were submitted from homes in affluent districts which were inhabited by well-to-do Kuwaitis and 6 from homes in overcrowded districts with poor housing conditions, inhabited by expatriates, mostly of Asian origin, with low incomes. Some of these expatriates narrated that bug populations were high and occurred everywhere in their homes. In addition, two other samples were received; one collected from the clothes of a laborer on a cattle farm and the other consisted of bugs found on the underwear of a citizen who worked in the seaport. The bed bugs were identified according to Usinger (1966).

### **Results and Discussion**

The samples examined contained adult bedbugs and were identified as *C. lectularius*. The reason for submission was either bites or finding bugs indoors. In general the affected people were not familiar with the insect. They complained of small purpuric macules or erythematous papules on their arms, legs, head and neck with vigorous itching and nervousness. Others did not have lesions and only discovered the infestation when bugs were found

creeping on carpets, walls, mattresses, sheets or underwear. Information from the seaport worker indicated that numerous persons in his quarters were infested. These persons worked in shifts, and the day shift and night shift used the same beds. After advice to examine the mattress, several bugs were found in the folds of the mattress, which was discarded. There was also circumstantial evidence to suggest the transfer of bugs with recent immigrants e.g. drivers, servants and laborers or with used furniture.

The numerous samples were received from different localities and the anecdotal stories of heavy infestations of houses and private residences indicate that bedbug is widespread in the State of Kuwait. *C. lectularius* is a nuisance pest to humans, causing loss of sleep due to annoying bites which could result in skin lesions and allergic hypersensitivity. However, the immunologic status of the host seems to determine the resultant cutaneous reaction (Mckiel and West, 1961). Prior to a blood meal, adult bedbugs are brownish in colour. After feeding, the colour appears more dull red, and the body of the bedbug elongates and widens. Smaller nymphs are translucent prior to feeding and bright red after feeding (Liebold *et al*, 2003). Bedbugs may inflict a series of bites in a row; referred to as "breakfast, lunch, and dinner", but the bite itself is painless.

Not all individuals react to bites, and a bedbug bite most often appears as a small puncture without a surrounding reaction. Some patients may have only asymptomatic purpuric macules (God-

dard and de-Shazo, 2009). Untreated individual lesions usually resolve in one week. Antigens in bedbug dung may play a role in asthma in some countries (Abdel-Nasser *et al*, 2006). The bites can become secondarily infected and present with impetigo or cellulitis (Delaunay *et al*, 2011).

Fortunately, under natural conditions, bedbugs have not been linked to transmission of any diseases; however, they have been shown to be able to harbor the causative organisms of plague, relapsing fever, tularemia, Q fever and hepatitis B (Mumcuoglu, 2008).

The increased infestation rate in the State of Kuwait, when compared to Al-Houty (1989), can be attributed to a number of factors. First the increase in migrant labor, and their mobility inside the country, that facilitates the spread of the infestation; currently 68 % of all inhabitants in the State of Kuwait are expatriates. The increase in reported cases appears also consistent with a worldwide increase in bedbug infestations in the last two decades, including in the USA, UK, Australia, Italy, Germany (Poorten and Prose, 2005; Mumcuoglu, 2008). Bedbugs can be carried in clothing, luggage and furniture (Paul and Bates, 2000; Kells, 2006), and the most-cited reason for the spread in recent decades is international trade and travel (Thomas *et al*, 2004).

Currently the infestations in the crowded parts of the country are controlled by application of insecticides. The commercial ready-for-use pyrethroid insecticide sprays for mosquitoes and flies are used. However, insecticidal control of bedbugs is often un-

successful as the insecticides do not reach the hiding places of bedbug, do not cover all affected surfaces and lack the persistence of the previously used chlorinated hydrocarbons. It has been observed that bedbug population in the USA and Israel are resistant to pyrethroids (Voiland, 2007). Other control measures as filling in wall holes and floor cervices are not considered. Also, the treatment is not always repeated and indeed the areas with high population of poorly housed migrant workers (and of bugs) could be reservoir of spreading of infestations (Kovacic and Somanathan, 2012).

The affluent citizens get rid of bedbug by discarding the infested items of furniture. Although this may help to resolve their problem, the discarded items may be used elsewhere, particularly by those expatriates of low income, with the risk to maintain, and spread, the bedbug population. Leaving such items outside for a week or so during the hot season, when temperatures reach 50°C, may help to eliminate the resident bedbug population. Prolonged exposure to temperatures of 35°C seems detrimental to survival and temperatures over 40°C lethal to bedbugs (Janisch, 1935). On the other hand, the year-round use of air conditioning in homes could enhance thriving and breeding of *C. lectularius*.

### **Conclusion**

Bed-bugs infestation may be suspected when specks of blood containing dung are found on linens, mattresses, or behind wallpaper. Extensive bedbug infestations produce a pungent odour that is recognizable to those familiar with it.

However, its bite is difficult to distinguish from other bites.

The outcome result calls the attention for further studies on the prevalence and control of bedbug infestations in the dwellings of poorer neighborhood which are inhabited by expatriates and could be reservoir of spreading of infestations in the State of Kuwait.

Further studies of effect of high temperature exposure, and of infestation rates in dwellings of poorer neighborhood may be of interest, and help to develop Kuwait-specific control methods.

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