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Letter to the Editor

Interaction of Carbohydrates- *Leishmania major* Parasite in *Phlebotomus papatasi*

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Dear Editor-in-Chief

Leishmaniasis is a disease transmitted by sand flies. It is caused by an intracellular parasite of leishmaniasis belonging to the family of Trypanosomatidae. More than 98 countries are affected by this disease, 350 million people at risk, and 12 million infected cases (1). "About 95% of CL cases happen in America Mediterranean, Middle East, and Central Asia and More than 60% of new cases of CL occurred in six countries: Afghanistan, Algeria, Brazil, Colombia, Iran and Syria". (2)

Zoonotic cutaneous leishmaniasis (ZCL) in many rural areas in 17 provinces of 31 provinces of Iran is indigenous. It is also a health problem in Iran. About 80% of the reported cases in Iran are ZCL form (3).

Although leishmaniasis is estimated to infect a large number of humans, unfortunately it is a neglected tropical disease (4). Leishmaniasis is currently one of the greatest public health problems in the world (5).

So far, there has been frequent effort to control the transmission of leishmaniasis. Unfortunately, in the cycle of this disease, mice and other rodents play an important role, and their control, along with the control of sand flies, are practically very difficult (6). Thus, some studies have focused on preventing the transformation of the *Leishmania* parasite into metacyclical form in the gastrointestinal tract of sand flies. Sugars in plants have a good effect on reducing or increasing the transmission of the leishmaniasis (7).

Considering that so far no study has been done in Iran, this study was first undertaken in order to achieve a method to disruption the *Leishmania major* parasite cycle. Some inhibitory carbohydrates in the sand flies midgut, prevent the attachment of the *Leishmania* parasite in the sand fly midgut. Until the stages of growth and development of the parasite in the midgut of the sand flies do not occur and do not reach the metacyclic stage. Our ultimate goal was to prevent the growth and development of the parasite in the midgut of the sand flies and not to reach the metacyclic stage (8).

The results of current study show that galactose non-inhibitory activity in the agglutination of the *L. major* parasite in the midgut of *Phlebotomus papatasi*. Therefore, this sugar was used as a positive control for in vivo and in vitro assays. The non-inhibition of one of the carbohydrat called galactose was confirmed in this study. We understood that galactose did not play an important role in the interaction between the parasite and sand fly.

The candidate carbohydrates found some species independent, so study on different *Leishmania* /sandfly species recommended.

Conflict of interest

The authors declare that there is no conflict of interest.

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