

## DYNAMIC TRANSMISSION OF CUTANEOUS LEISHMANIASIS

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### ABSTRACT

We present a deterministic model for the transmission dynamics of Cutaneous Leishmaniasis. The model includes an incidental host for human which acts only as a sink of infection, a primary reservoir host for rodent which acts as a source and a sink of infection, and a secondary reservoir host for Sand fly which have a role in transmission by acting as the liaison between incidental host and primary reservoir [1]. The global stability of the equilibria of the proposed model shows that the threshold conditions for disease persistence are completely determined by the reproduction number; the later do not explicitly include parameters relating to the dynamic transmission in the incidental hosts and consequently the disease becomes endemic if it persists endemically in the primary reservoir hosts. Thus the control measures should be directed towards reservoir hosts. Numerical simulations are performed using data from Biskra province in Algeria [2].

### References

[1] Selmane S (2015) Stability Analysis of a Human Phlebotomus papatasi Rodent Epidemic Model, Interdisciplinary Topics in Applied Mathematics, Modeling and Computational Science. 397-403

[2] Relevé épidémiologique mensuel, Institut national de la santé publique (INSP). <http://www.ands.dz/insp/rem.html>.