

Experimental transmission of rabbit haemorrhagic disease virus (RHDV2/b) by blood-sucking dipterans as mechanic vectors

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Rabbit haemorrhagic disease (RHD) is a viral disease that mainly affects European rabbits (*Oryctolagus cuniculus*). Currently, RHD causes important economic losses in the rabbit meat and fur industry, and is also decisive in the survival of endangered predators. Infected rabbits shed viral particles and oral route is the main transmission way. Regarding insect vector-borne transmission, excretions of flies (Diptera: Calliphoridae) have been demonstrated to be a mayor potential source of the virus. However, transmission by blood-sucking dipterans, although generally assumed as possible, has been scarcely tested. In the present work, transmission of the viral strain RHDV2/b through *Phlebotomus papatasi* (Diptera: Psychodidae) and *Aedes albopictus* (Diptera: Culicidae) is explored. Both diptera species were representative of telmophagy and solenophagy fed mechanisms. For each species, eight batches containing 20-40 captivity-bred females each were prepared. Females were partially fed with supernatant (0.22-µm pore size filtered) of a 20% w/v liver homogenate from a rabbit dead by acute RHD. Furthermore, one batch was frozen (positive control) and other three were allowed to complete feeding on the ear of laboratory rabbits (one rabbit per batch). The remaining four batches were maintained during 24h in laboratory conditions. Then, one batch was frozen (second positive control) and the remaining three were allowed to complete feeding on rabbit ear similarly to former batches. Rabbits were monitored for 35 days and no death occurred. However, seroconversion was recorded depending on experimental groups. Finally, viral particles in dipterans and rabbit tissues were determined by quantitative RT-PCR.