Substitute of Blood Meal for *Aedes aegypti* and Some Applications

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**Introduction:** Females of *Aedes aegypti* obtain in a blood meal many nutrients that are used mainly to support oogenesis. Here we describe an artificial and chemically defined solution to be used as a substitute for blood meal – hereafter called SBM – as a tool to study mosquito physiology. **Material and Methods:**

SBM was based on an artificial diet described in the literature (Kogan, 1990) and is a mix of NaCl, KCl, sodium bicarbonate, phosphate, glucose and purified proteins (Albumin, Gamma-globulins and hemoglobin) plus purified LDL or cholesterol-phospholipid micelles as a source of lipids. These solutions were offered to mosquitoes and the oviposition was compared with blood fed females. **Results:** All formulations of SBM resulted in production of some amount of eggs, but addition of LDL or lipid micelles increased significantly the number of eggs laid up 80% of the amount produced by a blood-fed insect. Several biological events related to digestion and use of the blood meal were followed, such as production of reactive oxygen species, activity of some enzymes, time course of meal protein degradation and the bacterial microbiota, in most cases showing a pattern that was similar to what was found with blood-fed females, although quantitative differences were observed. **Conclusions:** Taken together, our results show that the synthetic diet is an efficient tool to study mosquito physiology.

**Keywords:** *Aedes aegypti*, Hematophagy, Mosquito physiology

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**Reference**