Potential approach to regulate and monitor moisture for *Brachytrupes membranaceus* eggs

**For cricket rearing in the village of Sanambele, Mali**

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**Introduction:**

Entomophagy is the consuming of insects by humans. More than 1900 edible insect species consumed around the world; 13% are crickets (Adeyeye & Awokumi, 2010). *B. membranaceus* is a good source of protein, carbohydrate and energy (Adeyeye, I., & Awokumi, 2010). *B. membranaceus* has 2 seasons: dry season (mid-June to mid-September). Temperatures can reach as high as 45°C (113°F) during March with a relative humidity (RH) of 9-27% (Luong et al., 2012). Crickets lay eggs in sand to maintain ideal RH for their eggs to absorb water, without saturated, which leads to fungal issues or bursting. Cricket eggs contain everything needed for embryogenesis except water, which is absorbed through the eggshell (Masaki and Walker, 1987). To ensure eggs do not dry out and complete development, moisture will need to be maintained in the village. RH was higher consistently in the containers, but how much was unpredictable. Use of psychrometer created too much air exchange increasing cricket mortality (Yacouba Kone, 2010). To ensure eggs do not dry out and complete development, moisture will need to be maintained in the village. RH was higher consistently in the containers, but how much was unpredictable. Use of psychrometer created too much air exchange increasing cricket mortality (Yacouba Kone, 2010).

**Methods and Materials:**

**Results:**

**Discussion:**

A hypothesis was tested was cotton is not useful in gauging moisture for eggs. Alternative hypothesis tested was cotton is useful in gauging moisture for eggs.

**Recommendations:**

- Raise house crickets (*Acheta domesticus*) in the lab
- Use clay pots as containers to incubate eggs
- Use sand for egg laying
- Use food village of Sanambele would have available
- Determine how *A. domesticus* differs from *B. membranaceus* during embryogenesis.
- Measure with digital psychrometer to reduce air exchange.

**Conclusions:**

Although the climate varies annually in village of Sanambele, Mali, promising data indicate Sanambeleans may be able to manipulate RH. RH was significantly higher in test containers, which will slow evaporation rate and keep eggs moist longer. If we can get eggs to develop then the chance of raising *B. membranaceus* year long for children’s complete protein source and feed for chickens is promising. To ensure success further trials to raise crickets in Sanambele will help in completing the egg and life cycle development.

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**Literature Cited:**