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| **Appendix B**- Behavioral categories of the courtship executed by *Anastrepha fraterculus* males.  **Codes and descriptions of behavioral units** |
| **(AB)** Movement abdomen: up and down movements of the abdomen in relation to its normal position. Wings generally in an almost transversal position to 45° (ATR), although the wings can also be maintained in a transversal position (TR) or relaxed (*Relax*-RE). |
| **(AB-call)**: abdominal movement executed simultaneously with pheromone emission |
| **(AH 1-call)** Arrowhead-1: male holds its wings pointing backwards, maintaining them rigid and close to its body while emitting pheromone (Call 2) and moves the abdomen (AB-call). The insect may move its proboscis (or not) up and down. |
| **(AH 2-call)** Arrowhead -2: male moves its wings quickly and alternately, stroking them against the lateral pheromone glands for emission (Call 2); the maximum angle between the wing and the body is 45°; can occur (or not) with up and down movements of the proboscis. |
| **(AL)** Alignment: the male and female remain still and position themselves directly facing one another at short distances, looking directly at their potential partner. |
| **(AT)** Attempt: the male fly jumps onto the female and attempts to copulate, raising the ovipositor of the female with its rear legs while, sometimes, touching the head of the female with its proboscis, making forward and backward movements. |
| **(CALL)** Calling: pheromone emission with a bright and translucent drop of pheromone visible by the eversion of the anal membrane of the male (Call 1) and/or pheromone emission with visible exposure of the prominent lateral pleural glands (Call 2). |
| **(CO)** Contact male touches the female with its anterior legs before attempt; or touching proboscis between male and female before *attempt*; or touching antenna between male and female. |
| **(EN)** Enantion: slow and simultaneous back and forth motions of the wings. The angle between each wing and the body varies between 0° and 90°. |
| **(EN-call):** enantion realized simultaneously with pheromone emission |
| **(FA-call)** Fanning: male, walking or stopped, performs rapid and strong wing vibrations, continuous as well as intermittent, while emitting pheromone (Call1 and/or Call2). |
| **(FI)** Fight: aggressive interactions, with head-butting, between males, or between males and females. |
| **(FL)** Flying: the fly flies, flaps its wings, floats and moves to a landing field. |
| **(GF-call)** Graceful: male liberates its sexual pheromone (CALL), performing *Fanning* (FA-call), and simultaneously executing arching movements of its body. |
| **(GR)**Grooming*:* the fly stay stopped and performs body cleaning movements, stroking the legs on the wings, head, thorax, abdomen, proboscis, antennas, and ovipositor. |
| **(HA)** Hamation: the flies, usually stopped, performs alternate wing movements, with the angle between each wing and the body varying between 0° and 90°. |
| **(HA-call):** hamation undertaken simultaneously with pheromone emission |
| **(ML)** Marking leaf: male touches the leaf with his inverted anal membrane, marking the substrate with pheromone. |
| **(MO)** Mobile: when the male walks by moving his legs synchronously, and usually keeps his wings in an almost transversal position to 45° (ATR). |
| **(MT**) Mating: the male fly holds the female, positioning its three pairs of legs, introduces its copulatory organ into the female, while sometimes touching the head of the female with its proboscis, making forward and backward movements. |
| **(OC)** Oscillation: the fly moves yours legs laterally, walking, creating arcs with the movement of its body from side to side. At each lateral oscillation the insect executes wing movements of *hamation* (HA) or *enantion* (EN). |
| **(OC-call):** Oscillation undertaken simultaneously with pheromone emission (Call 1 and/or Call 2) |
| **(SP-call)** Spin: the fly turns 360° on its own axis, emitting pheromone (Call 1 and/or Call 2) and performing Fanning. |
| **(ST)** Stationary: the fly remains stationary with its wings in a relaxed position (RE), near the body - in a normal position, resting on its body - or held almost transversal (ATR) - wings with median angle of 45° in relation to its body; proximal portion of the wing positioned downward, distal portion upward. |
| **(TR)** Transversal: the flies, usually stopped , holds its wings transversal (180°) to the body axis. |
| **(TR-call)**: transversal position of the wings with concomitant pheromone emission |