Bibliography of Ultrasound Production and Perception in Insects

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Ultrasonics are defined as vibrations of a material medium at frequencies beyond the human audible range, usually above 20,000 hertz (20 kHz). The upper human threshold varies between 10 to 18 kHz, with young people capable of perceiving a greater range of frequencies. For the purpose of this bibliography, ultrasound is considered to be >20 kHz. References herein deal with the production, perception, and biological effects of ultrasound as related to insects. The only sonic criteria for inclusion of a citation was frequency >20 kHz, there being no consideration of intensity, wave form, or pattern of emission. Some effects include changes in orientation, heat accumulation, and cellular physiological disruption leading to death.

The manufacture and sale of devices that emit ultrasound intended to control or mitigate rodents or insects has increased dramatically the last few years. There has been a great deal of public interest in the devices because they are purportedly effective against pests, easy and economical to use, and are safe and chemical-free. Claims of ultrasonic activity against a wide variety of insect pests such as cockroaches, ants, flies, mosquitoes and moths have stimulated interest in documenting such effects in the scientific literature.[3]

There are several reviews by Frings and Frings (1958, 1960, 1971) and Sales and Pye (1974) on audible sound and ultrasound production in insects. Recent literature searches using BIOSIS PREVIEWS yielded few additional references, probably because key words such as ultrasound failed to appear in their titles. The objective of this bibliography is to provide a comprehensive list of literature citations that relate to research on ultrasound and insects.

Bibliography

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