Title:	Examining life-history traits, behavioural and neural responses to acoustic stimuli in Acanthogryllus asiaticus
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Abstract:	Signals are units of information used by animals to communicate with each other and acoustic signals are widely used as a modality of communication. Crickets are nocturnal members of orthopteran family. They produce sound by stridulating their wings, and different calls are produced in different behavioural contexts. Mate attraction is one of behavioural context in which the sound signals are produced. In crickets, females hear the signal and respond to the call by walking towards the caller and are known to show preference for certain spectral and temporal parameters of the call. There is a dedicated neural circuitry which plays an important role in the perception and recognition of the signal. The life-history traits of cricket are known to affect its signalling, choice and reproductive success. In this study, I have used a field cricket Acanthogryllus asiaticus to answer specific questions. I have looked upon the life-history traits of males and females in a lab-monitored population and compared them between sexes and the correlations within these traits in each sex. I have examined for female preference for chirp durations indicative of calls from males of different age classes. I also examined the neuronal response to heterospecific acoustic stimuli. The study suggests that in a lab-monitored population, the life-span, body- length, pronotum-length and pronotum width does not differ between sexes, whereas the parameters of hind leg size were significantly larger for females than males. In males, the wing size is found to be negatively correlated with life-span of the individual, and positively correlated with body size. In females, the ovipositor size was found to be positively correlated to pronotum length. Thus, the study suggests that there is sexual dimorphism in the hind leg size and how different sizes of body parts are correlated with each other. The female choice study indicates that females show no differential preference for the calls with chirp durations indicative of males from different age classes. This study indicates that there is no preference based on age, but it has to be further tested using other temporal parameters characteristic of the age. The study on neurons indicates that there are neurons which register heterospecific signals, but more data is required to say anything conclusive.
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