

## Removal of soil polymerase chain reaction inhibitors by addition of powdered activated charcoal

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Polymerase chain reaction (PCR) represents fast and reliable DNA amplification method applied in many scientific fields. However, its sensitivity to presence of various PCR inhibitory substances can lead to false negative results. Humic substances (HS), as major component of soil organic matter, are commonly found in DNA prepared from biological material exposed to environment. Due to their highly complex chemical composition, soluble HS readily co-purify with DNA and are difficult to remove without additional, often laborious treatments to obtain DNA suitable for PCR. The objective of the present study was to investigate removal of soil PCR inhibitors using powdered activated charcoal (PAC). The data show that soluble HS could be reduced up to 12-folds, based solely on change in temperature and time of adsorption. Complete PCR inhibition occurred in 90% of unpurified samples, while 45% of PAC-purified samples were successfully amplified. In addition, optimized PAC-purification resulted in minimal loss of DNA and DNA quantity and quality obtained using this simple method and commercially available ultrafiltration column were compared.

### Biography

Lucija Barbaric graduated in Biotechnology from Faculty of Food Technology and Biotechnology, University of Zagreb, Croatia. Currently she works at Forensic Science Centre "Ivan Vucetic" and pursuing her PhD degree in Molecular Biology from Faculty of Science, University of Zagreb.

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## Biotechnology of the honey bees: Morphometric analysis, floral rewards and floral calendar of the Asiatic honey bee *Apis cerana* in andhra pradesh, India

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The honeybees are one of the important and the oldest social insect forms which have the ecological capacity to sustain plant reproduction and rich source of honey production. Honeybee pollination sustains native plants and indirectly contributes to the control of soil erosion, the maintenance of plant biodiversity, which in turn beautify the human environment. Moreover honeybees pollinate native plants, which provide food for wildlife, and as inherent members of the local ecosystems. They play an important role in sustaining natural plants and animal communities that depend on them and hence are good indicators of the quality of the environment. The present study deals with the morpho-clusters of the Asiatic honey bee, *Apis cerana* F. (Order: Hymenoptera; Family: Apidae) in all seven agro-climatic zones of Andhra Pradesh State of India through sampling and morphometric analysis. Ten representative localities were selected in each agro-climatic zone based on the distance, topography and vegetation. Twenty one morphological characters were measured for twenty samples of worker bees of *A. cerana* collected from forage sources of each locality. As a result, the twenty one morphometric characters have been reduced to sixteen morphometric characters and then they were subjected to multivariate morphometric analysis. The inference is that there are two distinct populations of *A. cerana* in Andhra Pradesh. The study forms the baseline for improvement in *A. cerana* populations for good honey production and foraging efficiency in pollination and subsequent fruit/seed yield.

### Biography

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