A reliable and efficient method for coextraction of total nucleic acid from various microorganisms

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Abstract

We here develop a protocol for the simultaneous extraction of total RNA and DNA suitable for gene cloning and cDNA synthesis from the genus *Thraustochytrids*. By using a combined mechanical and chemical extraction method, the extraction yield and purity of total nucleic acid (RNA and DNA) are relatively high in small-scale cultivation of the genus *Thraustochytrids* and varied slightly in related strains, and similar results of single step extractions were also observed in other strains including a typical gram negative *E. coli*, a gram positive *Corynebacterium ammoniagenes* and a typical yeast *Phicha pastoris*. Normal- and RT-PCR products of 16S rRNA and known genes were amplified from all extracts of various microorganisms, indicating that the extracts were intact and pure enough for molecular biological applications and thus have potential for studying gene cloning and expression. This method will facilitate concomitant assessment of microbial diversity and PCR analysis from a single extraction of metagenome.

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Reference

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