

## Revolutionizing RNA Extraction: A Unified, Sustainable, and Rapid Protocol for High-Quality Isolation from Diverse Tissues

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**Abstract :** In the ever-evolving landscape of genome extraction protocols, the existing methodologies grapple with issues ranging from sub-optimal yields and compromised quality to time-intensive procedures and reliance on hazardous reagents, often necessitating substantial tissue quantities. This predicament is particularly challenging for scientists in developing countries, where resources are limited. Our investigation presents a protocol for the efficient extraction of high-yield RNA from various tissues such as muscle, insect, and plant samples. Noteworthy for its advantages, our protocol stands out as the safest, swiftest (completed in just 38 minutes), most cost-effective (coming in at a mere US\$0.017), and highly efficient method in comparison to existing protocols. Notably, our method avoids the use of hazardous or toxic chemicals such as chloroform and phenol and enzymatic agents like RNase and Proteinase K. Our RNA extraction protocol has demonstrated clear advantages over other methods, including commercial kits, in terms of yield. This nucleic acid extraction protocol is more environmentally and research-friendly, suitable for a range of tissues, even in tiny volumes, hence facilitating various genetic diagnosis and researches across the globe.

**Keywords :** RNA extraction, rapid protocol, universal method, diverse tissues

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