

## **Compaction agent protection of nucleic acids during mechanical lysis.**

Murphy JC, Cano T, Fox GE, Willson RC.

Department of Chemical Engineering, University of Houston, 4800 Calhoun Avenue, Texas 77204, USA.

Mechanical lysis is an efficient and widely used method of liberating the contents of microbial cells, but the sensitivity of large nucleic acids to shear damage has prevented the application of mechanical lysis to DNA purification. It is demonstrated that polycationic compaction agents can protect DNA from shear damage and allow chromosomal and plasmid DNA purification by mechanical lysis. In addition to being substantially protected during mechanical lysis, the compacted DNA can be separated with the insoluble cell debris, washed, and selectively resolubilized, yielding a substantially purified DNA product. An additional benefit of this method is that lysate viscosity is greatly reduced, allowing the use of much smaller processing volumes when compared with traditional lysis methods used in nucleic acid purification.

PMID: 16599571 [PubMed - indexed for MEDLINE]