

NMR Metabolomics

1H NMR Profiling

- Non-destructive analysis
- All proton-containing metabolites
- Quantitative without standards

2D NMR Experiments

- COSY, TOCSY, HSQC
- Enhanced resolution
- Structure elucidation

Quantification

- Direct concentration measurement
- Internal standard (TSP, DSS)
- No ionization bias

Sample Requirements

- Larger sample volumes than MS
- Buffer composition matters
- Lower sensitivity