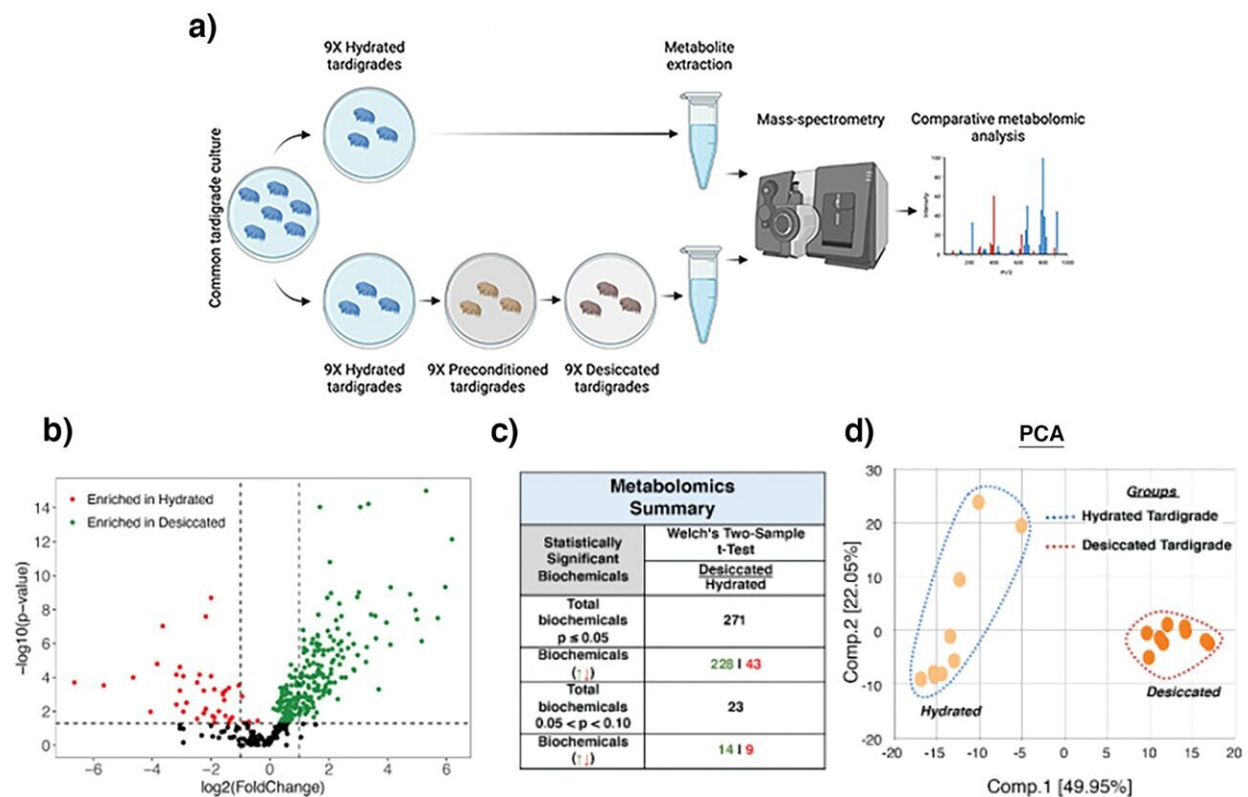


# Researchers reveal new knowledge of microscopic creature's durability

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Metabolomic analysis of hydrated and desiccated tardigrades. **a** Schematic representing preparations of nine hydrated and nine preconditioned and desiccated tardigrade samples for metabolomics analysis. **b** Volcano plot displays differential enrichment of metabolites with the change in hydration state of tardigrades. **c** Summary table of the metabolome profiling comparing hydrated and desiccated tardigrade samples. Welch's two-sample *t*-test used for statistical comparisons. **d** PCA showed major separation by hydration status on Component 1, suggesting that desiccation causes a substantial metabolic shift in

tardigrades. **e** Random forest comparison between hydrated and desiccated groups in tardigrades identifies trehalose and trehalose precursor UDP-glucose as significant metabolites that contribute strongly to the group binning. The plot shows the mean decrease in binning accuracy that would result from the removal of a particular metabolite from our analysis. **f** RFA confusion matrix showing that predictive accuracy within our dataset is 100%. **g** Plot showing scaled intensity (relative metabolite abundance) for trehalose in hydrated and desiccated samples.  $n = 9$ , Welch's two-sample  $t$ -test was used for statistical comparisons where \*\*\* indicates  $p$ -value

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