Supporting information

Table of Contents

S1. In vivo PSYCHE

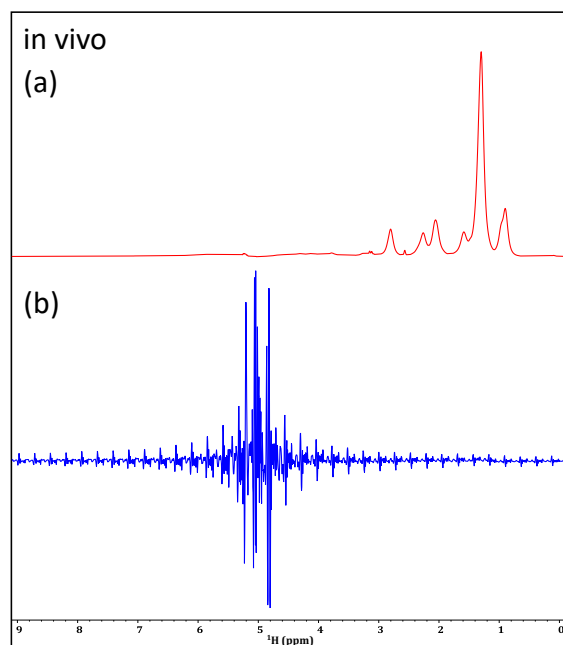**Figure S1.** (**a**) Standard 1D ^{1}H in vivo spectrum. (**b**) Attempt at applying ^{1}H PSYCHE to an in vivo sample. Unfortunately, due to the excessive water signal it was not possible to extract any information in vivo using PSYCHE.
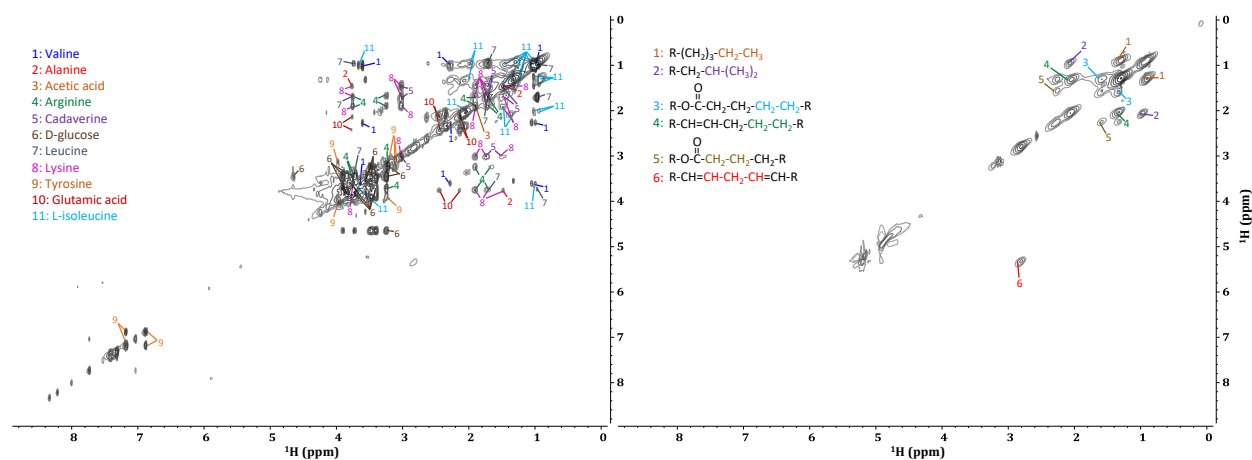
S2. Adiabatic TOCSY

Figure S2. Metabolite identification from the adiabatic TOCSY of an ex vivo (**left**) and in vivo (**right**) sample of *D. magna*. Only lipids are detected in vivo and the structural units giving rise to signals are labelled.