Proposal for a new Muon Catalyzed ${}^{3}\mathrm{He}-d$ fusion experiment

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We report on a possibility to use the experimental setup of the MuCap (Muon Capture by the proton) experiment for new search of the Muon Catalysed ${}^{3}\text{He}-d$ fusion reaction:

$$^{3}\text{He}\mu d \rightarrow ^{4}\text{He} (3.66 \text{ MeV}) + p (14.64 \text{ MeV}) + \mu,$$

with an order of magnitude higher sensitivity that in previous measurements.