

Impact of prolonged reduced-pressure condition prior to precursor labeling on the labeling efficiency of F-18 fluorocholine synthesis

ABSTRACT

Objective: The goal of this preliminary work was to observe the impact of the prolonged reduced-pressure condition prior to labeling stage on the F-18 Fluorocholine labeling yield at the end of synthesis. **Methods:** At this present work, the condition inside the reactor vial prior to labeling stage was manipulated. In the first technique of syntheses of F-18 Fluorocholine, the condition inside the reactor vial was set at 0 atmospheric pressure (0 atm) while in the second technique the condition inside the reactor was set at reduced-pressure (between -0.65 to -0.85 bars) with the delay time of 120 seconds. At the end of the synthesis, the impact of the prolonged reduced-pressure condition prior to precursor labeling was measured in terms of labeling yield of F-18 Fluorocholine. **Results:** With the second technique, the labeling yield of F-18 Fluorocholine was elevated from 9.7% (the first technique) to 24.3%. **Conclusion:** This preliminary work indicates that delay in a reduced-pressure condition prior to labeling step has greatly improved the labeling yield of F-18 Fluorocholine at the end of synthesis. Using this approach, the labeling yield of F-18 Fluorocholine was elevated from 7.5% to 24.3%.

Keyword: Azeotropic drying; F-18 Fluorocholine; Labeling yield; Reduced-pressure.