

ABSTRACT**METHOD VALIDATION OF FLAME ATOMIC ABSORPTION
SPECTROMETRY (FAAS) FOR THE DETERMINATION OF
MINERALS (Cu, Fe, and Mn) IN CAPSULE DOSAGE FORM OF
MULTIVITAMIN-MINERAL
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The purpose of this present study is to validate the Flame Atomic Absorption Spectrometry (FAAS) for the determination of minerals contained in the multivitamin-mineral capsule such as Cu (copper), Fe (iron), and Mn (manganese). The sample is destructed through destruction process of dry ashing ($550 \pm 20^\circ \text{C}$ for 2 hours until in ashes form) then continued to wet ashing by using mixture of 6 M HCl and concentrated HNO_3 (25:1). The validation of the method comprises the selectivity, linearity, limit of detection (LOD, limit of quantification (LOQ), precision, and accuracy. The proposed method has concentration ranges of 0.49 – 1.99 $\mu\text{g/ml}$ for Cu, 1.99 – 9.99 $\mu\text{g/ml}$ for Fe, and 0.50 – 2.01 $\mu\text{g/ml}$ for Mn. The correlation coefficient (r) obtained for each linearity equations are higher than 0.999 with the relative process standard deviation value (V_{xo}) is not more than 5%. LOD are found to be 4.8×10^{-3} $\mu\text{g/ml}$ for Cu, 6.2×10^{-2} $\mu\text{g/ml}$ for Fe, and 1.7×10^{-2} $\mu\text{g/ml}$ for Mn, meanwhile the LOQ are 0.01 $\mu\text{g/ml}$ for Cu, 0.1865 $\mu\text{g/ml}$ for Fe, and 0.05 $\mu\text{g/ml}$ for Mn. The method was successfully applied for the determination of the minerals e.g. Cu, Fe, and Mn in Multivitamin-mineral capsule dosage form.

Keywords: Method validation, FAAS, copper, iron, manganese, multivitamin-mineral, capsule dosage form.