To the Editor,

Measurement uncertainty (MU) has come to the forefront since ISO 15189 compelled laboratorians to evaluate it for all measurement methods [1]. Various researchers have published some articles in Turkish Journal of Medical Biochemistry concerning the utility of measurement uncertainty for examining laboratory quality [2–4]. In relevant articles expanded measurement uncertainties were compared with the allowable total error. The allowable total error can be used as a specification limit for measurement uncertainty only if a proper coverage factor utilized in the calculation [1]. However, at first, authors multiplied combined standard uncertainty with coverage factor 2 to calculate expanded measurement uncertainty, then compared it with the allowable total error. It should be kept in mind that coverage factor “2” is a Z score for two-sided estimations at 95% confidence interval. The allowable total error is commonly calculated as “1.65* imprecision + bias” [5]. It is obvious that expanded measurement uncertainty with two-sided estimation does not correspond to allowable total error. Additionally, measurement uncertainty can exceed the specification limit due to the wrong coverage factor. Therefore, Z score “1.65” should be utilized as a coverage factor to compare with the allowable total error.

References


Article note: Measurement uncertainty can be used as an indicator of laboratory quality by comparing with accepted limits. Measurement of uncertainty can be compared with allowable total error by using the proper coverage factor. The coverage factor seems to be utilized improperly in some articles published in Turkish Journal of Biochemistry.