

## Triangular Form of Lineweaver-Burk Plot for Enzyme Kinetics and Euler's Line

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### Abstract

In enzyme biochemistry, the double-reciprocal plot (Lineweaver-Burk plot) is well established concept. It is graphical presentation of numerical data on reciprocal of velocity of enzyme reaction ( $1/v$ ) and reciprocal of substrate concentration [ $1/S$ ]. This is useful for analysis of role of enzyme in the presence of inhibitors, competitive, non-competitive, or a mixture of the two. The present attempt deals with establishment of Euler's line through the use of Triangular form of Lineweaver-Burk plot. Lineweaver-Burk plot (double reciprocal plot) is with positive value of  $(K_m + V_{max})$  as a slope. The slope for Euler Line for Enzyme Kinetics is same, but with minus sign. The intercept on y-axis for Lineweaver-Burk plot (double reciprocal plot) for Enzyme Kinetics correspond to:  $(1 - V_{max})$ . The intercept on y-axis for Euler Line for Enzyme Kinetics correspond to:  $[(K_m + 1) - V_{max}]$ . Lineweaver-Burk plot (double reciprocal plot) and Euler Line for Enzyme Kinetics are intersecting at the point, x-co-ordinate of which correspond to:  $(1/2)$  and y-co-ordinate of which correspond to:  $[(K_m + 2) - 2V_{max}]$ . The centroid for enzyme kinetics is always located between the orthocenter and the circumcenter of enzyme kinetics. The distance from the centroid to the orthocenter is always twice the distance from the centroid to the circumcenter of enzyme kinetics. Attempt may open a new avenue for three dimensional enzyme structure of and mechanism of enzyme involved reactions.

### Keywords

Enzyme kinetics, centroid, orthocenter, circumcenter, Euler's line, Lineweaver-Burk plot

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