

# Edge Degree Zagreb Indices Of Graph Transformations And Its Applications

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## Abstract

The edge degree of a vertex  $u$  in a graph  $G$ , denoted by  $d_e(u)$ , is defined as the sum of the degree of edges  $d(e)$  which are incident to  $u$ , The Zagreb index based on the vertex degrees examined earlier by many researchers. In this article we introduce edge degree Zagreb indices of graph  $G$  using edge degree of vertices defined as  $EDZ_1(G) = \sum_{u \sim v \text{ in } G} [d_e(u) + d_e(v)]$ ,  $EDZ_2(G) = \sum_{u \sim v \text{ in } G} [d_e(u) d_e(v)]$ . Where  $v$  incident to  $u$  are vertices in graph  $G$ . We given the edge degree Zagreb indices for subdivision graph, line graph, semi-total line graph and semi-total point graph. Further carried out linear regression analysis of edge degree Zagreb indices of subdivision graph with the physio-chemical properties of benzenoid hydrocarbons.

**Keywords:** Edge degree of a vertex, Edge degree Zagreb index.

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