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## Comparative disintegrant properties of Ethiopian potato (*Plectranthus edulis*) starch against Irish potato starch and its optimization in paracetamol tablet formulations

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Starch is the most commonly used pharmaceutical disintegrant in tablet formulations. The aim of the present study was to assess the disintegrant property of Ethiopian potato (*Plectranthus edulis*) starch in comparison to Irish potato starch and its optimization in paracetamol tablets formulations-prepared by wet granulation method. Tablet properties such as crushing strength, friability, disintegration time and dissolution rate of the tablets were studied for both comparison and optimization studies. The results of comparative study showed that the properties of paracetamol tablets formulated with both starches as disintegrants were affected by their concentration and the Compression Force (CF) and *P. edulis* starch exhibited a favorably comparable disintegrant property with Irish potato starch in paracetamol tablet formulations. The study also showed that the CF and disintegrant concentration had significantly affected the response variables (i.e. the crushing strength, friability and disintegration time); hence, these factors were further optimized using central composite statistical design. The optimal conditions were obtained at a CF of 14.40 KN and disintegrant concentration of 5.96%. Under these conditions, the crushing strength, friability and disintegration time were 101.8 KN, 0.3% and 1.34 min, respectively. These values closely matched with the predicted values of the responses at the aforementioned levels of the factors. Thus, the results of this study indicated that Ethiopian potato (*P. edulis*) can be used as an alternative source of starch for its application as a disintegrant in the tablet formulations.

### Biography

Anteneh Assefa is currently working as a Lecturer of Pharmaceutics and Pharmacology at Wachemo University, Ethiopia. He is an expertise of pharmaceutical dosage form design and drug supply chain management.

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