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Isolation, characterization and evaluation of disintegrant properties of *Taro Boloso*-i (Colocasia esculenta cultivar) starch

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Starch, as a natural polymer, is sought preferentially after either to semi-synthetic or synthetic ones in drug delivery. Taro *Boloso*-I is a new variety of *Colocasia esculenta* officially released in Ethiopia and its cultivation out yields the other varieties by 67%. The aim of this study was to isolate and characterize the starch from this plant and also to evaluate its potential tablet disintegrant properties. Starch was extracted from Taro *Boloso*-I using saline solution and sodium hydroxide. Various experimental methods were applied for its characterizations. Central composite design was used for optimization of concentration of the starch used as disintegrant and compression force as factors to have best combination of hardness, friability and disintegration time of the tablets. Yield of starch from Taro *Boloso*-I on dry weight basis was 83.5±1.6%. The native Taro *Boloso*-I starch (NTB1S) showed lower amylose to amylopectin ratio (20.7±1.8% to 77.3±2.1%, w/w) higher onset, peak and endset temperatures of gelatinization than potato starch. Its granules are polyhedral/angular shape, A-type polymorph and cohesive. In all of these, Taro *Boloso*-I starch not only significantly differs from the previously reported taro varieties in Ethiopia but also shares more of properties of rice (cereal) starch. This study revealed that, if used as a disintegrant for fast dissolving tablets, NTB1S can result in better hardness and friability. It is a novel native starch in both its physicochemical properties and its potential disintegration effects.

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Evaluation of medication administration process in a pediatric ward

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Background: Children are more susceptible to medication errors than adults. Medication administration process is the last stage in the medication treatment process and most of the errors occurred in this stage. Little research has been undertaken about medication errors in children in the Middle East countries.

Aim: To evaluate how the pediatric nurses adhere to the medication administration policy and also to identify any medication preparation and administration errors.

Method: This was a prospective direct observational study of medication administration process, from when the nurses preparing patient medication until administration in the patient room in the pediatric ward (May to August 2014). Also, the observers were documented any medication administration errors occurred during the study period. Main outcomes were adherence rate of each step of preparation and administration process, number of errors and associated risk factors. All data collected was anonymous and was recorded on a data collection form which was designed specifically for this purpose.

Results: Fourteen pediatric nurses serving for 90 pediatric patients were observed. 456 drug administered doses were evaluated. Seven steps out of 16 steps with lower adherence rate. Patient allergy information, dose calculation, drug expiry date were the steps in medication administration with lowest adherence rate. 63 medication preparation and administration errors were detected with error rate 13.8% of medication administration. No potentially life-threatening errors were witnessed. Few technical and administrative factors were identified.

Conclusion: Medication administration policy and procedure need an urgent revision. Nurses' knowledge and skills regarding to the medication administration process should be improved.

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