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Standardization of spray dried powder of *Piper betle* hot water extract

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Piper betle Linn. (Family:Piperaceae) is a perennial dioecious, semi woody climber which is cultivated in Sri Lanka, India, Malaysia, Indonesia, Philippine Islands and East Africa. The leaves of *P. betle* possess several bioactivities and are used in the traditional medicinal systems of Sri Lanka. In modern herbal drug industry, there is a trend to manufacture tablets and capsules from spray dried powders of bioactive plant extracts. Some examples are Amla spray dried powder, Neem spray dried powder, Arjuna spray dried powder, Turmeric spray dried powder, Noni spray dried powder, *Aleo vera* spray dried powder etc. Therefore, an attempt was made to prepare (1) a spray dried powder from *P. betle* hot water extract and (2) to standardize the spray dried powder by (a) determination of physico-chemical parameters (b) screening phytochemical constituents and (c) developments of HPLC fingerprints and densitograms.

Six samples from *P. betle* spray dried powder were used for the standardization. The percentages of moisture content, total ash, acid insoluble ash, water soluble ash, ethanol extractable matter of spray dried powder of *P. betle* were 2.2 – 2.5%, 6.8 – 7.0%, 0.003 – 0.005%, 4.1 – 4.3% and 15.8 – 16.2% respectively. The concentrations of all the tested heavy metals (Hg, As, Pb, Cd) were below (Pb: 0.50, Cd: 0.10, As: 0.05, Hg: 0.05 mg/kg) the WHO acceptable limits and bacterial species such as *Escherichia coli*, *Salmonella* spp, *Staphylococcus aureus* and *Pseudomonas aeroginosa* were not present in the *P. betle* spray dried powder. The phenolic compounds, tannins, flavonoids, steroids and alkaloids were present in the spray dried powder of *P. betle* and HPLC fingerprint and densitogram clearly demonstrated the proportional differences of these chemical constituents. In conclusion, the results obtained from physico – chemical parameters, phytochemical screening studies and development of HPLC fingerprint and densitogram can be used to standardize *P. betle* spray dried powder.

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