



Research article

## Effects of extraction methods and solvent systems on extract yield, proximate composition and mineral profiling of *Terminalia arjuna* (Arjuna) dry powders and solvent extracts

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**Key words:** Solvent extraction; yield; mineral profiling and proximate composition; methanolic fruit extract.

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### Abstract

Present experiment was conducted to evaluate and establish the effects of processing/pre-treatment on biochemical composition, mineral profiling and yield (%) of selected solvent extract of *Terminalia arjuna* (Arjuna). Analyses revealed that maximum yield (%) was ascertained in ethanolic bark extract for both fractions, individual (23.6±0.026%), and serial (22.23±0.017%). Non-significant difference ( $p \geq 0.05$ ) was observed in yield of ethanolic and methanolic bark extracts while non-polar solvent extracts showed significant differences ( $p \leq 0.05$ ). The mineral profiling revealed a wide variation among dry powder and their solvent extracts. After fractionation, the Zn content of fruit extracts increased and recorded highest to be in methanolic extract in the tune of 45.29 mg/l. The ash and moisture content established an inverse relationship for all solvent extracts. The maximum ash content was observed in arjuna bark powder 28.95±0.001% (serial) and 28.19±0.008 % (individual). The ash content does not follow the same pattern for mineral profiling ascribing more acid insoluble ash in bark followed by leaf and fruit which might be contributing towards bio-efficacy of the solvent extracts which can be depicted from present study that arjuna bark can be incorporated as ingredient for harnessing its bioactive properties and solvent extracts might be utilized for designing the drug. Thus, the present experiment showed a way to maximize the mineral profiling particularly Zn a potent neuro-transmitter which can be incorporated in developing the suitable feed for livestock's and fisheries in one hand, and pave a way for mitigating the nervous disorders in human health is concerned.

### Abbreviations

L4: Acetone extract of arjuna leaf, L5: Ethanol extract of arjuna leaf, L6: Methanol extract of arjuna leaf, L7: Distilled water extract of arjuna leaf, Br4: Acetone extract of arjuna bark, Br5: Ethanol extract of arjuna bark, Br6: Methanol extract of arjuna bark, Br7: Distilled water extract of arjuna bark, F4: Acetone extract of arjuna fruit, F5: Ethanol extract of arjuna fruit, F6: Methanol extract of arjuna fruit, F7: Distilled water extract of arjuna fruit, AB: Arjuna Bark powder, AF: Arjuna Fruit powder, AL: Arjuna leaf powder.