**Formulation Of** **Solid Self-Microemulsifying Drug Delivery System Containing Andrographolide**

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**Background and aims.** Andrographolide (ADG) is a diterpene lactone isolated from the herbal medicine named *Andrographis paniculata* (Burm. F) Wall. ex Nees, Acanthacea, which has been shown to have many biological effects such as antibacterial properties, liver protection, anti-diabetic properties, immune enhancement, and anti-cancer properties. However, due to poor solubility and low bioavailability, the treatment effectiveness drops traumatically. Research to improve the solubility, dissolution, and bioavailability of ADG is of interest to researchers. The solid self-microemulsifying drug delivery system (S-SMEDDS) is considered a potential solution, helping to increase the solubility, dissolution, and improve the absorption of ADG. This study aims to establish the formula and preparation process of S-SMEDDS containing ADG with high solubility, and to optimize self-emulsification ability and increase bioavailability, creating a premise for application in pharmaceuticals.

**Methods.** The selection of excipients for S-SMEDDS was based on results from drug solubilization capacity and emulsification efficiency test, and dissolution test. A ternary phase diagram was generated to identify the proportion of compositions (without polymer) that, upon mixing, formed a clear and transparent microemulsion. The drug loading capacity, and dissolution test of the formulations were investigated in order to establish the final formulation.

**Results.** Results revealed the composition of S-SMEDDS ADG namely 20% ADG, 40% PEG 6000, 16% Transcutol HP, 16% Kolliphor HS 15, 6.4% Gelucire 48/16 and 1.6% Gelucire 44/14, having droplet size at 180.47 nm ± 2.69 nm, zeta potential at 8.83 ± 0.73 mV and a high dissolution profile compared to raw materials, and meeting the standards of Chinese pharmacopoeia 2020.

**Conclusion/Discussion.** Great potential can be achieved from the formulation of stable S-SMEDDS-ADG at a 10 g scale with a high drug loading percentage, and a well-qualified dissolution rate.

**References:**

1. Zeng B, Wei A, Zhou Q, et al. Andrographolide: A review of its pharmacology, pharmacokinetics, toxicity and clinical trials and pharmaceutical researches. 2022;36(1):336-364.