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Kalonji (the blessed herb): Scientific outlook and transformation with novel drug delivery concepts

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Introduction & Objective: Among the plant based drugs, *Nigella sativa* L. (Ranunculaceae), known commonly as black cumin or Kalonji has shown excellent antioxidant, wound healing, anti-inflammatory, anticancer and antimicrobial and antifungal activity. The oil contents have shown beneficial activities such as anti-diabetics, hematology, hepatic, anti-cancer, antibacterial, gastroprotective, analgesic, blood pressure, estrogenic activity, wound healing activity, etc. The purpose of this presentation is to focus on result based studies conducted in our laboratory on wonder herb Kalonji. It was said by Prophet Muhammad in Islam that use of the black seed for indeed, it is remedy for all disease except death.

Methods: A detailed studies on Kalonji Oil (KO) wound healing activities and comparison of various types of formulations has been conducted. A lyophilized floating beads contain KO were developed for its gastroprotective action. Nano-vesicular drug delivery system, ethosomes, nanoemulsion based gel and nail lacquer were developed for its anti-fungal activities. The vanishing cream based formulations containing KO was developed for its anti-acne and improvement of skin complexion was developed. It has also been reported to have excellent activity for lung cancer due to its active component thymoquinone.

Findings: Various drug delivery systems for KO have been explored by our laboratory. The nano-vesicular system, ethosome containing KP showed excellent anti-fungal activity, 70% more activity as compared to marketed product of Clotrimazole and KO alone. Similarly, nanoemulsion showed better penetration through biological membrane and nail plate. Sodium alginate lyophilized porous beads containing KO entrapped in to the polymeric network were developed successful with 8 hours floating time and gastric retention time. The studies on comparison of cream, gel and ointment containing KO for its wound healing activity revealed that cream and gel as compared to ointment showed better wound healing. A vanishing cream containing KO had excellent effect as anti-acne and it also improved skin complexion within 7 days.

Conclusion & Significance: Extensive studies on *N. sativa* have been carried out by various researchers and a wide spectrum of its pharmacological actions. Due to its miraculous power of healing, *N. sativa* has got the place among the top ranked evidence based herbal medicines. The further focus is needed to unveil its potential to its maximum.

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