

## *Morinda Citrifolia* (Noni) in the Treatment of Psoriasis

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**Abstract:** *Morinda citrifolia* (Noni) fruits have been used traditionally to treat diabetes, high blood pressure, cancer, mechanical injury, and arthritis. However its mechanism of action have not yet been fully elucidated. Herein I describe an important case in which psoriasis was treated with *M. citrifolia* in combination with conventional anti-rheumatism therapy. This is the first report showing the effect of *M. citrifolia* on skin lesions associated with psoriasis. This case sheds light on the pathological difference between skin lesions and arthropathy associated with psoriasis.

**Keywords:** *M. citrifolia*, anti-rheumatism therapy, interleukin(IL)-4, MTX, DAS28-CRP.

### Text

*Morinda citrifolia* (Noni) is a small to medium-sized tree that grows in India, Burma, China, and Polynesian islands. *M. citrifolia* fruits have been used traditionally to treat diabetes, high blood pressure, cancer, mechanical injury, and arthritis by native Polynesians. However, in addition to the lack of clinical evidence, the mode of actions of this fruit have not yet been elucidated. Several researchers have reported that the immune-stimulant properties of *M. citrifolia* contribute to its anti-tumor potential [1]. *M. citrifolia* juice concentrate has been reported to stimulate the cannabinoid receptors, decrease interleukin(IL)-4 levels and increase interferon- $\gamma$  levels pointing to the immunostimulant potential of this plant. In addition, a polysaccharide-rich substance was reported to stimulate the release of tumor necrosis factor- $\alpha$ , IL-1 $\beta$ , IL-10, IL-12 p70 and nitric oxide. Recently, the hydroalcoholic extract and one of the fractions of *M. citrifolia* fruits significantly enhanced the antibody titer in immune-compromised animals [2]. In the study with human fibroblasts, anthraquinone isolated from *M. citrifolia* showed significantly increased elaboration of procollagen type I C terminal peptide and glycosaminoglycans, as well as reduced expression of the collagenase matrix metalloproteinase-1. Together these observations suggest that extract from *M. citrifolia* might be a strong inducer of the biosynthetic activity of extracellular matrix components [3]. Therefore, extracts from *M. citrifolia* might contribute to the treatment of not only tumors but also immunological and skin disorders. Psoriasis is a chronic, relapsing, cutaneous condition with 1-2% prevalence in the general population. Psoriatic arthritis is a chronic inflammatory arthropathy present in ~30% of patients with psoriasis. In this report, I describe the treatment of psoriasis with *M. citrifolia*, in addition to conventional anti-rheumatism therapy. This is the first report showing the effect of *M. citrifolia* on the skin lesions of psoriasis.



**Fig. (1).** Skin lesions before the treatment with *Morinda citrifolia* (Noni) (Fig. 1, upper panel) and after the treatment with 4g/day of *Morinda citrifolia* (Noni) powder together with weekly MTX and no etanercept injections (Fig. 1, lower panel).

A 31-year-old man with a 14-year history of psoriasis developed polyarthritis in 2008 and was admitted to our clinic. Weekly monotherapy with 8mg of methotrexate (MTX) did not ameliorate his arthritis and treatment with etanercept (25mg every other week) was started in addition to the MTX. Although his economical situation prevented him from using a full dose of etanercept, his arthritis significantly ameliorated and his DAS28-CRP decreased to 1.52. Despite the remission of arthritis, his psoriatic skin lesions were not improved (Fig. 1, upper panel). He then took 4g/day of *Morinda citrifolia* (Noni) powder together with weekly MTX and ceased taking etanercept

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injections. Although his arthritis worsened after one month, (DAS28-CRP was 2.79), his psoriatic skin lesions surprisingly improved significantly (Figure 1, lower panel). Although the relationship between the *M. citrifolia* and clinical improvement could be non-causal, and this effect might be caused by the effects of concomitant treatment with MTX and etanercept. This is the first report showing the possibility of a clinical effect of *M. citrifolia* on psoriasis. *M. citrifolia* has been reported to have anticancer and immunomodulation activity [4, 5]. Therefore Noni, together with MTX might have unknown immune-modulation effects on skin lesions and arthropathy associated with psoriasis. This case also gives us a clue to differentiate between skin lesions and arthropathy in terms of their pathogenesis. This might be explained merely by the strength of immunosuppressive effects, but qualitative differences could also be involved. Further experimental and clinical studies are required to draw a clearer picture of how *M. citrifolia* can modify the pathology of skin lesions associated with psoriasis.

## CONFLICT OF INTEREST

None declared.

## ACKNOWLEDGEMENT

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