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## Turmeric, Curcumin and Ayurvedic Medicine Research

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### Editorial

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## INTRODUCTION

A summary of studies on the efficacy of curcumin against osteoarthritis is presented as an example so as to provoke a dialog on the desired direction of Ayurvedic medicine research.

Turmeric, the powder of dried rhizome of *Curcuma longa*, has been used in Ayurvedic medicine and is a household spice today. It contains over twenty potentially active compounds - one of which is curcumin<sup>[1]</sup>. It was first extracted from turmeric about 200 years ago<sup>[2]</sup>. *In vitro* and clinical studies have focused on the potential role of this compound for management of osteoarthritis and other chronic inflammatory diseases for which there is no known cure.

Curcumin has been studied extensively for relief of pain and function in osteoarthritis<sup>[3]</sup>. Several studies have shown that curcumin taken in capsule form is efficacious for pain relief and function in osteoarthritis. Its adverse effects may be less severe than those of NSAIDs which are commonly used as analgesic and anti-inflammatory agents<sup>[4]</sup>.

The caveat is that despite the oral doses being as large as 1500 mg/day, curcumin cannot be detected in plasma of the patients. Because adverse effects prohibit an intravenous administration of this compound, many proprietary products have been invented to increase the curcumin oral bioavailability. Meriva, made from phosphatidylcholine plus curcumin, may marginally improve its bioavailability and is also efficacious against osteoarthritis<sup>[5]</sup>. Black pepper contains piperine which can inhibit hepatic and intestinal glucuronidation of curcumin and thus increase its bioavailability by 20-fold<sup>[6]</sup>. Efficacy against osteoarthritis is maintained. A literature search did not show any work on the efficacy against osteoarthritis for the combination of turmeric and black pepper containing diet. BCM-95CG or Biocurcmax is a proprietary product in which curcumin is reconstituted with non-curcuminoid components of turmeric to increase the curcumin bioavailability<sup>[7]</sup>.

Another criticism is that curcumin is not the only ingredient in turmeric that may benefit osteoarthritis patients. One study shows that a curcuminoid free polysaccharide rich extract (NR-INF-02) obtained from turmeric is also efficacious against osteoarthritis<sup>[8]</sup>.

Even though the above summary is about *Curcuma longa*, literature is filled with studies where other Ayurvedic herbs such as *Boswellia serrata* (shallaki or salai), *Withania somnifera*. (ashwagandha), *Tinospora cordifolia* (guduchi), *Phyllanthus emblica* (amla or amlaki) and *Zingiber officinalis* (Ginger, adrak) are used for making extracts or for isolating individual compounds<sup>[9]</sup>. The resulting preparations or their combinations are then tested in the form of Ayurvedic medicine research.

Evidence based medicine has become the mantra of Western medical schools. It has also permeated into the Indian medical education system. Today, it looks for double blind placebo controlled studies on defined molecules to alleviate specified symptoms. Those working on Ayurvedic medicine research are trying to do their best to serve this master possibly because it can lead to "intellectual" properties like proprietary products and patents. Knowledge of ancient medicine is not considered a legal "intellectual" property.

What direction should the research on Ayurvedic medicine take? Who should test whether cooking with turmeric and black pepper (or fenugreek seeds) can serve the same purpose as the new products being introduced and tested? Is this onus on the companies or researchers developing the new products derived from it? On the other hand, do the providers of Ayurvedic medicine feel that there is no need for such clinical testing because historical and epistemological evidence is already there? It is certain that there are many viewpoints on this issue, of course, each with its own bias.

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