

# On the effectiveness of Ayurvedic medical treatment: humoural pharmacology, positivistic science, and soteriology

MAARTEN BODE, NOVEMBER 2008

Ramanujan is widely thought of as the greatest intuitive mathematician of our time, that is to say a self-taught man who thought in mathematics, one to whom the rather laborious notion of mathematical proof or demonstration was foreign. Many of Ramanujan's results (or, as his detractors call them, his speculations) remain undemonstrated to this day, though there is every chance they are true.<sup>1</sup>

## I Introduction

This article concerns the effectiveness of Ayurvedic medicines, the main element of Ayurvedic medical treatment. As a humoural pathology, Ayurveda uses its own rationality in determining interactions between materia medica and human biology and physiology. If positivistic pharmacology is the sole arbiter for the effectiveness of Ayurvedic single and compound medicines, then we deny the individual character of the Ayurvedic pharmacologic paradigm and we could dismiss potentially effective medicines because they cannot be proven within the positivistic paradigm of current-day pharmacology. This article also addresses the duality of medical paradigms in general. On the one hand, the focus is on 'repairing' objectified bodies. The physician is like a mechanic who has at his disposal a toolkit of instruments such as medications, physiological techniques, and dietary and healthy living recommendations with the goal of preventing, managing and, where possible, curing illness. On the other hand, medicine can be viewed as a form of soteriology, i.e. the

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<sup>1</sup> J.M. Coetzee, 2002, *Elizabeth Costello*, Penguin Books New York, 2003, p.68.

naming of suffering and its answers. For example, biomedicine is an important modern-day doctrine of salvation as it is very common to express suffering in biomedical terms and to turn to biomedical science for solutions.<sup>2</sup> This intrinsic duality in medicine is also expressed in Ayurveda, India's most widespread traditional treatment method. Contemporary Ayurveda has at its disposal medicines and other treatment modalities that are used to treat common ailments such as indigestion, cough, muscle pain, headache, and pimples and rashes, in addition to menstrual irregularities, whitish discharge, postpartum and menopausal ailments. Ayurvedic medicines are also propagated as remedies against biomedically defined diseases of a chronic nature such as diabetes mellitus, arthritis, Alzheimer's and Parkinson's disease. A variety of tonics 'to boost the immune system' comprise yet another important class of modern Ayurvedic medical products. However, among supporters of Ayurveda who link this medical tradition to Indian culture and spirituality, as well as in contemporary popular writings and advertisements for Ayurvedic medications, Ayurveda is called *amṛta* (the elixir of life). Its medications and therapeutic practices must remove physical and psychological impurities like humoral excesses, waste products (*mala*), and mental 'toxics' such as greed and anger. As such, Ayurvedic medications, practices and regimens are ways of preparing the path to spiritual liberation (*mokṣa*). The goal is not solely to prevent, relieve, manage or remove physical and psychological affliction, but to promote health in a metaphysical sense.<sup>3</sup> Here, health is not just the absence of illness, but a positive state sometimes referred to by the term *svāsthya*. This is the idea of being established in your 'real' self: the Self that goes beyond soma and psyche, is not bound to time and place, and cannot die.

The main part of the article comprises a discussion and analysis of three case studies of Ayurvedic medical treatment. On this basis, I will identify three aspects of effectiveness. These descriptions will be preceded by a plea for ethnographic research to obtain an understanding of the effective components of Ayurvedic treatment. Prior to this, I analyse

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<sup>2</sup> The American medical anthropologist Byron Good states that: "In contemporary Western civilization medicine is the core of our soteriological vision". Byron Good, *Medicine, Rationality, and Experience: An Anthropological Perspective*. Cambridge: Cambridge University Press, 1994, p. 70. Soteriology is here defined as an understanding of the nature of suffering and as a means of transforming this suffering.

<sup>3</sup> Joe Alter speaks about "metaphysical fitness". See: Joseph S. Alter, 1999, 'Heaps of Health, Metaphysical Fitness: Ayurveda and the Ontology of Good Health in Medical Anthropology'. *Current Anthropology* 40, February 1999, S43–58.

the differences between humoural scholastic and positivistic pharmacology. In this discussion, I examine the ways in which the latter can be used to improve the effectiveness of Ayurvedic medicines. How can we apply modern pharmacology without undermining the individual character of Ayurveda as a humoural logic based on systematic correspondences between somatics, ecology and the divine? Examples of Indian positivistic pharmacological research from the last four decades demonstrate that this research leaves much to be desired because it has not been informed by a good understanding of the differences between humoural paradigms of systematic correspondences and the modern laboratory-based and positivism-driven pharmacology. I will then discuss the cultural connection of Ayurvedic medicines using the best-selling Ayurvedic preparation and its main ingredient as an example. To begin, however, I sketch the contours of the Ayurvedic view of the body and its illnesses.

## II Ayurveda as a scholarly medical tradition

Ayurveda is a rational tradition in which natural and moral symbols are used to define, negotiate and treat illness. Images from nature play an important role in nosology, aetiology and therapy. For example, the Ayurvedic therapeutic objectives involve ripening and expelling accumulated humours, feeding and lubricating tissues, and lifting blockages which obstruct the natural flow of humours (*doṣa*), tissues (*dhātu*) and waste products (*mala*). Ayurveda's qualitative and synthetic concepts link the physical body to other aspects of life, such as the social, the ecological and the spiritual, which are nowadays beyond the medical domain in the strict sense of the word. Empirical knowledge of the physical world is coded in the categories of humoural pathology, which are arranged according to systematic correspondences connecting spheres of life we nowadays label as social, ecological and spiritual. Ayurvedic parlance interrelates, explains and manipulates empirical observations on illnesses made over the centuries, the biological effects of herbs, and the results of therapeutic measures. As a humoural pathology Ayurveda explains non-wellbeing as a dis-balance between the body's humours, referred to as *doṣa*. In a healthy state, the *doṣas* support the body. Disruption in the balance between the *doṣas* leads to illness. When illness occurs, one or more *doṣas* corrupt – undermine, attack or decay – the body, and then become the 'faults' of the body. Ayurveda has three

*doṣas*: phlegm (*kapha*), bile (*pitta*) and wind (*vāta*). The *doṣas* are linked to the elements which according to classic Indian metaphysics compose all matter – and therefore also the *doṣas*. Because of its characteristics (*guṇas*), the humour *kapha* is associated with the elements (*mahābhūtas*) of earth and water, *pitta* with the element of fire, and *vāta* with wind and air. The three *doṣas* have their own locations in the body and control certain physiological functions. *Kapha* ensures cohesion in the body, tissue structure and keeps the body supple. It has an anabolic effect on the body. *Kapha* is found in such places as the joints, the lungs and the small intestine. *Pitta* is located in the stomach, the liver and the eyes. It takes care of digestion, the assimilation of nutrients and facilitates the production of lymph, blood and the other five *dhātus*. *Vāta* is situated, for example, in the large intestine, and ensures the elimination of faeces and other waste products. This *doṣa* also plays a role in the transport of nutrients throughout the body and is responsible for motor functions. Psychological functions are also affected by this *doṣa*. For example, epilepsy and other psychological afflictions (*unmāda*) are attributed in Ayurveda to disrupted *vāta*. These are but a few of the locations and functions of the *doṣas*. *Kapha*, *pitta* and *vāta* can each be broken down into five further divisions. This means that there are five types of *kapha*, *pitta* and *vāta*, each with their own locations and functions in the body.

An important Ayurvedic concept is that illness develops if the flow of a *doṣa* is interrupted. The humour accumulates and then eventually ‘burst its banks’, supplanting other *doṣas*. In a healthy person, the *doṣas* ‘irrigate’ the seven body tissues (*dhātus*), producing vital energy (*ojas*), which protects and stimulates the natural self-healing ability of the body. Illness is characterised by and occurs if the *doṣas* cannot move freely through their organs and channels. This gives rise to ‘flow blockages’, which are seen as both a cause and a result of illness. The body’s organs are viewed, first of all, as reservoirs. Each organ is filled with and controlled by one or more *doṣas*. For example, the liver is the location of *pitta*, the *doṣa* that facilitates the conversion of nourishing liquid (*rasa*) into blood (*rakta*). Under the influence of *pitta* in its capacity as a ‘pigment’ (*rañjaka*), colour is added to the transparent chyme and this substance is converted into blood. Organs can also be the site of more than one *doṣa*. For example, the stomach is ‘ruled’ by *pitta* and *vāta* and the lungs by *kapha* and *vāta*. Nowadays, illness is often attributed to ‘undigested’ food (*āma*), which is not absorbed by the body, e.g. not transformed into *dhātu* (tissue), and consequently undermines health. Ayurvedic therapeutic measures include toning the body’s digestive fire and

stimulating the body's innate capacity to heal itself through cleansing and strengthening its channels and organs.

Ayurvedic concepts are closely related to daily life. Ayurvedic qualities such as 'hot', 'cold', 'dry', 'wet', 'heavy' and 'light', for example, are both technical terms originating from classic Indian physics and metaphysics, as well as common descriptions used in everyday speech. Ayurvedic principles attributed to *pitta*, such as 'warming', 'drying' and 'transforming' are characteristics of the digestive fire and the sun. The moon that represents the qualities of 'connecting', 'nourishing' and 'cooling' is present in the body as *kapha*. The wide scope of the Ayurvedic concepts makes it possible to place illness and suffering in a broad metaphysical perspective.

Ideally, *vaidyas* are versed in making tailor-made medical formulas and combinations of readymade medications, based on their clinical observations and on the complaints as experienced and communicated by the patients themselves. For this they can draw upon traditional texts with recipes that contain a list of ingredients and their indications for use. Symptoms, syndromes, and Materia Medica are all described in humoral qualitative terms such as 'cold', 'hard' and 'astringent', qualities that are at the heart of classical Ayurvedic theory. Humoral reasoning provides a link between symptoms and illnesses on the one hand and ingredients and recipes on the other.<sup>4</sup> In compounding a medicine for an individual patient, the *vaidya* ideally takes into account such things as the body tissues affected (*dhātu*), the strength of the digestive fire (*agni*), accumulated toxins (*āma*), disruptions in the flow of *doṣa*, *dhātu*, and *mala*, the somatic and psychological constitution of the patient (*prakṛti*), the disruption of the individual *doṣa* balance (*vikṛti*), the phase of the illness, sleep pattern, sexuality, daily rhythm and diet.

### III Humoral-pathological pharmacology

In contrast to modern medical science in which clinical medical science and pharmacology are two separate fields, these two elements are combined in the Ayurvedic humoral-pathological approach. It is an anthropocentric approach that focuses on the effects of medicines, as experi-

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<sup>4</sup> Francis Zimmermann, 1995, 'The Scholar, Wise Man, and Universals: Three Aspects of Ayurvedic Medicine'. In *Knowledge and the Scholarly Medical Tradition*, ed. Don Bates, Cambridge: Cambridge University Press, p. 311.

enced by the patient and observed by the physician, on human biology, physiology and the symptoms of illness. Ayurvedic medicines are often complex in their composition, with ten ingredients or more being the rule rather than the exception. The ingredients of an Ayurvedic preparation are responsible for various functions, such as ‘nourishing’, ‘softening’, ‘balancing’, ‘cleansing’ and biologic availability. Scholastic Ayurvedic healers are hermeneutics who go back and forth between the signs of illnesses that they ‘elicit’ from the patient and relevant passages in the texts (hermeneutic circle). These Ayurvedic texts support the physicians in naming, grouping and interpreting the symptoms of illness which manifest in an individual patient. On this basis, they design a medicine whose composition reflects the diagnosis. Whereas positivistic pharmacology is guided when designing a medicine by objectified illness categories that are ‘extracted’ from the patient, scholastic physicians proceed from the ailment that manifests in an individual patient. They make use of the concepts and logics laid down in Ayurvedic classical and traditional texts, to which a certain infallibility is attributed. These are ‘natural’ principles that apply to the past, present and the future. I will attempt to clarify these ideas by comparing humoral clinical pharmacology with positivistic pharmacology in the table on the next page.

To clarify the distinction between the classical and modern medical sciences, Don Bates, an expert in the field of humoral pathologies, sets out three axes: gnostic versus epistemic (authentic knowledge witnessed by a seer versus knowledge based on explicit verification rules and protocols for knowledge acquisition); scholarly-committed versus empirical-committed (text-based knowledge versus pragmatic, empirical knowledge), localism versus universalism (individually embodied knowledge versus universally distributed knowledge). In this context, it should be noted that the large range of humoral pathological concepts and their poetic logic might come closer to the world as experienced by the patient than the technical concepts and logic of the positivistic approach. Once again, this is a relative distinction. Both the humoral and the positivistic approach are abstractions and the individual body-subject partially eludes these abstractions. In Bates’ words, both approaches suffer from ‘... a fundamental contradiction: its practice deals with the individual while its theory grasps universals only’.<sup>5</sup> Before discussing Ayurveda as

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<sup>5</sup> Don Bates, 1995, ‘Scholarly Ways of Knowing: An Introduction’. In Don Bates (ed), *Knowledge and the Scholarly Medical Tradition*. Cambridge: Cambridge University Press, pp. 1-22.

a representative of Indian culture, I will describe Indian positivistic research supporting Ayurvedic theories, practices and substances.

Table 1: Humoural-pathological and positivistic pharmacology

Pharmacological approach with scholastic and practical focus (scholarly praxis).	Technical research expertise borne by a community of scientists who make use of protocols in their research.
The Ayurvedic hermeneutic interprets signs of 'not feeling well' and compounds a medicine on this basis.	Phased experimental development of a medicine for an objectified and standardised clinical picture.
Body-subject: the lived-in body as the subject gives 'meaning' to medicinal substances by the way in which it reacts to a medicine.	Body-object: the body and its illnesses are standardised objects that are manipulated within experimental pharmaceutical models.
Synchronicity: A sick person and his or her illness represent a 'crossroads' at which several causes of illness and individual characteristics of the patient 'meet'.	Unilinear causal relationships: statistical logic links quantitatively defined causes (aetiology), illness classes (nosology), and medicines (therapy).
Inter-subjectivity: individual combinations of ingredients and compound formulas are constructed in the clinical encounter. Key pharmacological concepts such as <i>rasa</i> (taste) and <i>prakṛti</i> (constitution) are also inter-subjective in nature.	Machine objectivity: the efficacy of medicines is constructed within pharmacological protocols marked by objectified measurements. Ideally, the designing of medicines, medical diagnosis and treatment are separate areas.
Pharmacological and medical knowledge is located in individual physicians (connoisseurs). It involves authentic and possibly implicit insights that might go beyond observable phenomena; knowledge lies in transcendent authorities (e.g. Caraka) and in healers who have overcome human passions such as the 'defilements' of greed, lust and anger. Direct observation ( <i>pratyakṣa</i> ) and logical reasoning ( <i>anumāna</i> ) must prevent uncritical adherence to authorities.	Pharmacological and medical knowledge is found in research and treatment protocols. It involves machine-objectified knowledge that must satisfy explicit rules for knowledge acquisition. Knowledge is set down in manuals, peer-reviewed journals and conference proceedings.

#### IV Ayurveda and logical positivistic research

Formularies and pharmacopoeia have been developed under the responsibility of the Ministry of Health since the 1960s.<sup>6</sup> However, this has not led to the standardisation of Ayurvedic formulas, and there are no accepted procedures to date for establishing the identity and quality of ingredients and products. To frame Ayurvedic substances, government institutions apply both the methodology and format of the pharmacopoeia of Western medicine. The formularies of pharmacopoeias which have been produced describe the ingredients used in Ayurvedic formulas in physical and chemical terms, and suggest laboratory tests for determining the identity, purity and strength of the components of Ayurvedic formulas. Tissue cultures, experimental animal studies and clinical trials have become arbiters on issues of toxicity and efficacy. Clinical studies on the efficacy of indigenous formulas in the treatment of ‘intractable diseases’ such as jaundice, bowel disorders, rheumatic complaints, epilepsy, psychiatric and psychosomatic disorders, and skin diseases (leukoderma and psoriasis, for example) are another area of government research. However, few parties take this research seriously. This comes as no surprise, because these studies generally lack scientific rigour, are marked by faulty statistics and make the unlikely claim of a 90 percent success rate for the treatment of chronic diseases such as arthritis and skin ailments, which usually defy treatment.

I will now provide a second example of this research practice with the objective ‘of correlating Ayurvedic and modern pharmacological parameters’. This originates from a study on Mentat, the Ayurvedic tranquilizer from the Himalaya Drug Company, the second-largest manufacturer of Ayurvedic medicines:

It took time to unravel the criss-crossing of the neurotransmitters—especially since many neurotransmitters have the same function and the same transmitters have many functions. Further, recent medical discoveries have unearthed biomedical molecules that were supposed to be only in the brain, in other organs and systems of the body, thus

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<sup>6</sup> In 1969 the Indian government established institutes for education and research in Ayurveda and other Indian medical traditions. In 1978 the Central Council for Indian Medicine and Homeopathy (CCIM&H) was founded. It now functions under the Department of AYUSH, Ministry of Health & Family Welfare, which has a network of laboratories and research institutes – sometimes connected to colleges and universities – all over India.

cracking the Cartesian compartments within which various systems of the body were supposed to function. This led to the understanding of the existence of an inter-relationship between the brain, the immunological, psychological and nervous systems—in short, the functioning of the body as a whole. This makes it possible to translate Ayurvedic concepts and principles into the language of modern medicine.<sup>7</sup>

Correlations are simply stated and not accompanied by valid argumentation. There are many other examples that demonstrate the disregard for the distinction between humoral-pathological pharmacology, in which a concept such as *rasa* (taste) plays a crucial role, and positivistic modern-day pharmacology, which assumes quantitatively defined concepts. Other examples of the equal treatment being given to concepts originating from two different approaches to medicines and their effects on the human body are the unquestioning association of the seven *agnis* (the seven ‘fires’ that convert food into the seven Ayurvedic ‘tissues’) with enzymes<sup>8</sup>, the linking of the three *doṣas* (humours and illness-producing substances) with neurohormones<sup>9</sup>, and the translation of the concept of *ojas* (vital essence) into the idiom of modern-day immunology.<sup>10</sup> Once again, correspondences between concepts originating from different paradigms are postulated rather than supported by arguments. This constitutes a lack of intercultural and inter-scientific sensitivity.

Modern positivistic research into the pharmacological effect of ingredients present in Ayurvedic formulas is more convincing as it has been published in peer-reviewed journals such as the *Journal of Ethnopharmacology*, *Phytomedicine* and the *Journal of Tropical Medical Plants*. An example is the research on *āmalakī* (*Phyllanthus emblica* Linn.; synonym: *Embolica officinalis* Gaertn.), the Indian gooseberry that is an important ingredient in the two best-selling Ayurvedic preparations: *triphalā* and *cyavanprāś*. If we take a look at what the PubMed database says about modern scientific research into *Phyllanthus emblica*, we find

<sup>7</sup> Himalaya Drug Company, 1991, ‘Mentat. A Monograph’, p. 2.

<sup>8</sup> C. Dwarkanath, 1967, *Digestion and Metabolism in Ayurveda*. Krishnadas Ayurveda Series No. 42. Varanasi: Krishnadas Academy.

<sup>9</sup> S.R. Pathak and R. H. Singh, 1995, ‘Effect of Certain Indigenous Drugs on Neuro-Humoral Profile of Tridosha Factor’. *Journal of Research in Ayurveda and Siddha* Vol. 16, Nos.1–2, pp. 51–62.

<sup>10</sup> S. A. Dahanukar and U. M. Thatte, 1997, ‘Current Status of Ayurveda in Phytomedicine. Review Article’. *Phytomedicine* Vol. 4, Issue 4, pp. 359–68.

122 publications that discuss the gooseberry.<sup>11</sup> In addition, I have examined the pharmacognostic and pharmacological research into *Phyllanthus emblica* that appeared several years ago in an article in the respected *Journal of Alternative and Complementary Medicine*.<sup>12</sup> This review article mentions five research articles that discuss *āmalakī*. These research articles concern an analysis of the physicochemical composition of *āmalakī*; experiments on animals that demonstrate the effectiveness of *āmalakī* in accordance with the logic of an accepted pharmacological in-vitro model; and clinical research in which patients are given *āmalakī* in an experimental context. These studies offer some evidence supporting, for example: the effectiveness of *āmalakī* in cases of hyperlipidemia (rats), stress reduction (rats), memory improvement (rats and humans), viral hepatitis (humans; n=32), heartburn (humans; n=18) and hypercholesterolemia (humans; n=35). The biologic effectiveness of *āmalakī* in modern pharmacognostic and pharmacological research is usually attributed to cell-wall reinforcement and its anti-oxidative qualities (elimination of free radicals).<sup>13</sup> In general, however, such positivistic research is not highly regarded by prominent pharmacognostics and pharmacologists. In a World Health Organisation publication entitled 'Traditional Medicine in Asia', the prominent Indian pharmacologist Ranjit Roy Chaudhury attributes this to the lack of standardisation of the substances studied, inadequate toxicity studies and unsound clinical research.<sup>14</sup> However, this certainly does not mean that positivistic pharmacological research is unnecessary. Such research is sorely needed to ensure both the composition and the quality of Ayurvedic medicines. All too often we find that preparations do not contain the ingredients that they should and claim to contain, Ayurvedic preparations are contaminated by heavy metals and pesticides, and mistakes arise during the production process that undermine the safety and effectiveness of a medicine. This has resulted in pleas for good laboratory, manufacturing and agricultural prac-

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<sup>11</sup> Accessed 21 december 2007.

<sup>12</sup> Michael J. Balick, 2001, 'Therapeutic Plants of Ayurveda: A Review of Selected Clinical and Other Studies for 166 Species', *Journal of Alternative and Complementary Medicine* Vol. 7, Issue 5, pp. 405-516.

<sup>13</sup> See for example S.A. Dahanukar, & U.M. Thatte, 1997, 'Current Status of Ayurveda in Phytomedicine. Review article'. *Phytomedicine* Vol. 4, Issue 4, pp. 359-68.

<sup>14</sup> Ranjit Roy Chaudhury and Mandakini Roy Chaudhury, 2002, 'Standardization, Pre-Clinical Toxicology and Clinical Evaluation of Medical Plants, Including Ethical Considerations'. In Ranjit Roy Chaudhury and Uton Muchtar Rafei (eds), *Traditional Medicine in Asia*, SEARO Regional Publications No. 39, World Health Organization, Regional Office for South-East Asia, New Delhi, pp. 209-26

tice, especially by those who are concerned with the credibility of Ayurvedic medical treatment.<sup>15</sup> Due to the inroads made by modern science into Indian society, the use of modern pharmacology is also necessary for the trust that Ayurvedic physicians and their patients have in Ayurvedic medicine.<sup>16</sup> Turning to modern pharmacology has also become mandatory for the validation of Ayurvedic pharmacological ideas and practices, for example, with respect to the link between the taste (*rasa*) of a medical substance and its biological effects, one of the basic tenets of Ayurvedic pharmacology (*dravyaguṇasāstra*). These kinds of ‘correlation study’ are also necessary for validating traditional processing techniques such as Ayurveda’s elaborate detoxifying procedures.

I am familiar with two research institutes trying to bridge the gap between positivistic and humoural pharmacology in a more convincing manner than the examples I have given of government research and pharmacological studies by the major manufacturers of Ayurvedic medicines. Work done over the last two decades at the Department of Clinical Pharmacology, Seth GS Medical College & KEM Hospital Mumbai (Bombay), for example, has resulted in three centres for registering and analysing Adverse Drug Effects in the case of Ayurvedic medicines. One reason this is necessary is that, in India, Ayurvedic medicines are often used and prescribed in combination with Western medicines. The Foundation for the Revitalization of Local Health Traditions (FRLHT), located in Bangalore, is another example of a research institute seeking in a more realistic manner to close the gap between humoural and positivistic pharmacology. FRLHT is working towards the positivistic verification of traditional ideas. Examples include the link between the quality of Ayurvedic drugs and their location, time and season of harvest, and the

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<sup>15</sup> See Darshan Shankar, P.M. Unnikrishnan & Padma Venkatsubramanian, 2007, ‘Need to Develop Inter-Cultural Standards for Quality, Safety and Efficacy of Traditional Indian Systems of Medicine’, *Current Science* Vol. 92, Issue 11, pp. 1499-1505; Bhushan Patwardhan, Dnyaneshwar Warude, P. Pushpangadan, & Narendra Bhatt, 2005, ‘Ayurveda and Traditional Chinese Medicine: A Comparative Overview’, *eCAM*, Vol. 2, Issue 4, pp 465-473; Maarten Bode, 2009, ‘Ayurvedic Pharmaceutical Products: Government Policy, Marketing Rhetorics, and Rational Use’. In Karen Eggleston (ed) *Pharmaceuticals in Asia-Pacific: Manufacturers, Prescribing Cultures, and Policy*. Palo Alto: The Asia-Pacific Research Center, Forthcoming.

<sup>16</sup> See Harish Naraindas, 2006, ‘Of Spineless Babies and Folic Acid: Evidence and Efficacy in Biomedicine and Ayurvedic Medicine’. *Social Science and Medicine* Vol. 62, No. 11, pp. 2658-2669; Maarten Bode, 2008, *Taking Traditional Knowledge to the Market: the Modern Image of the Ayurvedic and Unani Industry, c. 1980-2000*. Hyderabad: Orient Blackswan.

value of traditional extraction methods and of traditional techniques to monitor the proper course of the preparation phases of an Ayurvedic drug. Another Ayurvedic insight that FRLHT is trying to substantiate with positivistic evidence involves notions about how an Ayurvedic compound formula should be designed. Ingredients that modern pharmacology views to be insignificant are according to Ayurvedic tradition crucial to the efficacy and safety of an Ayurvedic drug. However, FRLHT is aware of the fact that humoural and positivistic pharmacology represent two distinct knowledge paradigms, as demonstrated by the following quote:

While using modern tools one should not expect perfect correspondence between the traditional qualitative and quantitative parameters, because the correlations will be limited by the difference of epistemologies.<sup>17</sup>

More so even than establishing the humoural logic that underpins designing and manufacturing of Ayurvedic medications, FRLHT wants to advance a positivistic underpinning of the efficacy of Ayurvedic preparations. In the article from which the passage above is quoted, Shankar et al. plead for "... a paradigm shift in design of clinical trials because Traditional Health Systems adopt a customized and multi-pronged strategy in treatment ... [and focus on] improving systemic functioning ... achieving homeostasis, rather than eliminate a specific agent(s)... aiming at both mental and physical well-being."<sup>18</sup>

### V Ayurveda, Indian culture, and *dua* (blessings)

As we have seen, the positivistic pharmacological and medical conceptual research conducted by the Indian government and manufacturers of Ayurvedic medicines since the 1960s suffers from both a lack of quality and the understanding that scholastic medical sciences based on systematic correspondences between different knowledge domains differ from positivistic approaches to reality.<sup>19</sup> Poetic language, religious concepts

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<sup>17</sup> See Darshan Shankar, P.M. Unnikrishnan & Padma Venkatsubramanian, 2007, 'Need to Develop Inter-Cultural Standards for Quality, Safety and Efficacy of Traditional Indian Systems of Medicine', *Current Science* Vol. 92, Issue 11, p. 1503.

<sup>18</sup> *ibid*, p. 1504.

<sup>19</sup> See Bode 2008, pp. 131-72.

and elements from folk culture are part of the scholastic forms of medical science, while positivism excludes these domains. In their zeal to provide a scientific basis for Ayurveda, the individual character of Ayurveda is lost. The American anthropologist Joseph Alter phrases this as follows, '(...) stridently positivistic reading of the classical medical texts, which edits out everything that does not conform to a Western notion of rational empiricism'.<sup>20</sup> Did the Indian researchers not see any difference between anthropocentric Ayurvedic pharmacology and the positivistic scientific approach that relies on experimental research models and the assumption that the research methods and instruments used do not influence the research findings? In contrast to idealistic approaches to reality in which the observer and the observed are inextricably linked, positivism assumes that the objects and phenomena under study exist separately – in other words, independently of: research categories (concepts); observational, operational and measurement methods; and the imperative of statistical science and its assumption of temporal-spatial unilinear causality of phenomena. Fully in line with positivistic rhetoric about science being value-free and the notion that the 'facts' gathered can be separated from epistemological assumptions and research methods, most of the work of the Indian government and the Ayurvedic industry so far has been insensitive to differences between scholastic and positivistic ways of knowing. This research mistakenly assumes that there is merely a 'communication gap' between scholastic humoral and positivistic medical science. Researchers assume that though Ayurveda is a divine science, its insights do not differ substantially from modern pharmacology and medicine. For them Ayurvedic knowledge is 'deep' knowledge of natural processes and therefore applies at all times and to all disorders.<sup>21</sup> In their view all the researcher has to do is 'translate' Ayurvedic nosology, aetiology and pharmacology into positivistic terms. The target language is that of modern pharmacology forgetting that its words (concepts) and grammar (logic) structure medical and pharmacological reality.<sup>22</sup> This state of affairs reflects the absence of a professional commu-

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<sup>20</sup> See Alter 1999, p. S48, note 17.

<sup>21</sup> See Bode 2008, pp. 185-187. Cf. S. Irfan Habib & Dhruv Raina, 2005, 'Reinventing Traditional Medicine: Method, Institutional Change, and the Manufacture of Drugs and Medication in Late Colonial India', in Joseph S. Alter (ed), *Asian Medicine and Globalization*. Pennsylvania: University of Pennsylvania Press, pp. 67-77.

<sup>22</sup> Cf. Jan G. Meulenbeld, 'The Woes of Ojas in the Modern World', in Dagmar Wujastyk & Frederick M. Smith (eds), *Modern and Global Ayurveda: Pluralism and Paradigms*. Albany: State University of New York Press, 2008, pp. 157-76.

nity of Ayurvedic researchers who have reached consensus on ontological principles, research methods and the use, scope and meaning of both humoral and positivistic pharmacological concepts. Too often it looks as if researchers try to force round Ayurvedic concepts and logic into the square holes of positivistic pharmacology and biomedical science. This approach deprives us of insights into the individual character of Ayurveda as a scholarly humoral and therefore hermeneutic tradition.

From my conversations with Indian researchers in the area of Ayurvedic medicines and concepts, it seems that they simply want to add science to culture, i.e. their positivistic pharmacological research has the objective to confirm the eternal truths of Ayurveda. Parallel to the idea that Ayurvedic knowledge is eternal, we find the view that Ayurveda is deeply embedded in Indian culture and Hinduism, and that it expresses the essential principles of both. The prominent Ayurvedic scholastic P.V. Sharma expresses this as follows:

In conclusion, it may be said that religion and health are so intermingled that one can't be seen without the other. That is why health like religion, has become part and parcel of Indian culture. Therefore, it would be difficult for anybody to understand health sciences of the Hindus without tracing its cultural background. Secondly religion and health are interdependent. Religion is necessary for perfect health and health is necessary to follow religion. One can't be achieved without the other.<sup>23</sup>

According to Priyavrat Sharma, religion and a 'natural' lifestyle are part of Indian culture and Hinduism, which are treated here as synonymous. Ayurveda is seen as a component of Indian folk culture but is also connected to the *śāstras* which, in turn, are linked to Hinduism. In India, it is common to view folk medicine as the non-codified version of the scholastic Ayurveda. An example of this is the Indian gooseberry *āmalakī* or *amlā*, which is known as 'the mother' (*dhātrī*) due to its balancing and protective qualities. *Āmalakī* is also the main ingredient in *cyavanprās*, the best-selling Ayurvedic medicine in India. Both are surrounded by mythological stories whose purpose is to explain their biological effectiveness. The following quote is from a popular work entitled 'The Indian Kitchen'. The entry for *āmalakī* includes the following:

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<sup>23</sup> P.V. Sharma, 1989, 'Religion and Health', *Aryavaidyan* Vol. 2, Issue 3, p. 173.

Sometimes known as the Indian gooseberry this tangy fruit is considered to be the elixir of good health one such sage Cyavan, blended together. Several thousand years ago when the Indian herbal system of medicine, Ayurveda, was already developed, sages would go deep into the forests looking for newer and more effective remedies. One such sage, Cyavan, blended together certain energising herbs, fruits and spices based on a secret recipe. The principal fruit used in this mixture, Cyavanprāś, was amlā, to which are attributed near magical powers. This dark brown tonic is still sold and consumed in India and is believed to increase vitality and stamina.<sup>24</sup>

Here, the seer (*rṣi*) Cyavan is the creator of *cyavanaprāśa*. According to one of the myths about this compound drug, the medicine's complex formula with at least 48 ingredients was prepared for the first time by Cyavan after a overcurious and ultimately sexually demanding princess accidentally poked his eyes out. Cyavan was deep in meditation for a long time and was therefore completely covered with ants. The princess thought he was an anthill and poked him with a stick. The seer became furious after which the father of the princess ordered her to marry Cyavan. To consummate the marriage and improve his strength and sexual powers the old seer made *cyavanaprāśa*.<sup>25</sup> The formula's main ingredient is *āmalakī*, which according to Ayurveda balances the three *doṣas*. This Indian gooseberry has the following humoural characteristics (*guṇa*): bitter, astringent, digestive, laxative, diuretic, and revitalising. Its use is said to be beneficial in cases of jaundice, whitish discharge, fever, impurity of the blood, nausea, diabetes, anorexia and heartburn.<sup>26</sup> Here, the goals of Ayurvedic medical treatment lie mainly in the somatic sphere. In a metaphysical sense, Ayurveda aims to restore the relationship between matter (*prakṛti*) and consciousness (*puruṣa*) and therefore helps in attaining *mokṣa*. *Cyavanaprāśa* is both a pragmatic instrument to

<sup>24</sup> Monisha Bharadwaj, 1998, *The Indian Kitchen. A Book of Essential Ingredients with over 200 Easy and Authentic Recipes*. London: Kyle Cathie Ltd., p. 118.

<sup>25</sup> Traditionally *cyavanaprāśa* is known to boost physical strength, to stimulate the brain, to rejuvenate, to increase sexual potency; and is recommended in cases of asthma (*śvāsa*), involuntary semen loss, diabetes (*madhuprameha*), wind-blood (*vātarakta*), semen-fault (*śukradoṣa*), urine-fault (*mūtradoṣa*), and weakness of voice. See W.S. Lata, 1990, *svasth jivan* (Healthy Life). Bombay: Leopard Investments.

<sup>26</sup> V.V. Sivarajan, & I. Balachandran, 1994, *Ayurvedic Drugs and their Plant Sources*. Oxford & IBH Publishing Co, Delhi, pp. 28-9.

prevent or manage physical malaise as well as a vehicle toward liberation in a metaphysical sense. The next quote taken from an interview that I conducted with the head of an Ayurvedic hospital, expresses this two headedness as follows:

Ayurveda is part of the Vedas and therefore contains knowledge for transforming a person to a higher level of consciousness. Ayurveda is *amṛtadāna* ... its primary objective is *mokṣa* and eternal life. Ayurveda represents two knowledges: as a medical system its medicines give temporal relief and as part of the Vedas it contains knowledge that enhances your consciousness.

According to this informant Ayurvedic substances and regimens not only lead to a higher state of consciousness, but are also a product hereof:

Like the rishis, a *vaidya* who leads a spiritual life ‘sees’ which plant is to be used in individual cases of, for example, fever or anaemia (*pāṇḍu*).<sup>27</sup>

Another informant, a professor of Sanskrit, goes one step further and attributes the – alleged – deterioration of Ayurvedic treatment to a moral decline among *vaidyas*:

While diagnosing his patient the consciousness of the *vaidya* should flow into the body of the patient. However nowadays most *vaidyas* do not lead an ascetic lifestyle and are ruled by greed and anger. Therefore their senses and mind are crude and they are not sensitive enough to do their work properly.<sup>28</sup>

Ayurvedic healers are supposed to be of high moral standing. Ideally, a good physician is someone who possesses a deep knowledge of life gained through spiritual practice and a lifestyle governed by ethics. Here, knowledge and ethics are closely linked. Individuals who incorporate religious practices and moral standards of their time into their daily life have a privileged access to reality and therefore see “the root cause of a disease”.<sup>29</sup> I turn next to a brief discussion of ethnography as a suitable

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<sup>27</sup> Interview Bangalore, August 2006.

<sup>28</sup> Interview Bangalore August 2006.

<sup>29</sup> Interview director Ayurvedic college, Coimbatore, February 2002.

qualitative methodology to identify the elements that are crucial for successful Ayurvedic treatment. Ethnographic research allows us to remain close to Ayurvedic ideas and practices, which is an essential precursor to good positivistic research.

## VII Ethnographic research

If we want to retain Ayurveda as a unique medical tradition, it does not make sense to narrow down Ayurvedic theories, practices and materials by describing and analyzing them in isolation and only on biomedical and positivistic pharmacological terms. Ethnographic fieldwork is the research method of choice if we want to map out Ayurveda as a living humoral undertaking. Ayurvedic medicine as a socio-cultural practice varies accordingly to the images, ideas and techniques that are produced and reproduced in a specific locality. Ethnography can throw light on the content and diversity of contemporary Ayurvedic practice and thought. For example, the juxtaposition of the rational technical (physiological/biological) and the existential (worldview/ethos) – Ayurveda as a device or as metaphysics – is a reality to which each Ayurvedic locale responds in its own way. Ayurvedic practices are at the crossroads at which local, national and global forces interact and therefore should not be analysed in isolation, but as extended cases which are shaped by and reflect macro developments in medicine in general and Asian medical traditions in particular. The open character of the ethnographic approach will allow important questions to be answered: *for whom* does an Ayurvedic treatment work, *how* does it work and *when* (under what conditions) does it work?<sup>30</sup> In contrast to the in-vitro approach of positivistic pharmacology in which validity is lost due to the strict requirements of machine-objectivity and reproducibility, the ethnographic method looks at the effects of a medicine within the context of social relationships and the closely associated meanings. Here, the focus is on medicine-based evidence instead of evidence-based medicine. Next, I describe and discuss three examples of ethnographic studies into Ayurvedic practices in India.

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<sup>30</sup> See Linda L. Barnes, 2005, 'American Acupuncture and Efficacy: Meanings and Their Points of Insertion', *Medical Anthropology Quarterly* Vol. 19, Issue 3, pp. 239-266.

The *vaidyas* under discussion are educated in the traditional sense of the word and their practice is guided by humoral-pathological insights and knowledge of classic Ayurvedic literature.<sup>31</sup> They live and work in Southern India and Sri Lanka, regions known for their authentic Ayurvedic approach. All three are familiar with Sanskrit texts and recite – at set times – *ślokas* that relate to their patients' complaints. Two of them treat patients in their home clinics. My description and analysis of their practice is based on ethnographic work done by two medical anthropologists with significant knowledge of the local culture. The third case I have noted down myself in a small Ayurvedic hospital near the Southern Indian city of Bangalore. The case descriptions show three aspects of Ayurvedic treatment that are a part of an authentic Ayurvedic approach: creatively composing a medicine using the patient's somatic and psychological responses; placing the illness and the patient in a broader metaphysical framework; and the use of medicines within an extensive treatment regimen.

### Case 1: The man who retains 'wind' (*vāyu*)<sup>32</sup>

Dr Fernando is part of a traditional family of *vaidyas*. He treats his patients at his home using an authentic form of Ayurveda, which means that he is not guided by a biomedical diagnosis and the accompanying logic about the cause and progression of the illness. Dr Fernando prescribes medicines that he has prepared himself, adapting the ingredients in accordance with how the patient and the illness respond to the treatment. He is a cultured man who reads Sanskrit and makes use of Ayurvedic authoritative texts in Sinhala, a Sri Lankan language. The patient is a 32-year-old man who has come to Fernando after regular biomedical treatment failed to cure his ailment. His symptoms are as follows: pain in the left side of the stomach, nausea, aversion to food, no appetite and bloating. The diagnosis is indigestion (*ajīrṇa*). *Ajīrṇa* is localised in the stomach and the first part of the small intestine and is considered an early stage of *arśas* (piles). Related complaints are diarrhoea (*atisāra*, literally: 'too much flow') and *grahaṇī*, a term that indicates the small

<sup>31</sup> These three cases have been published in a slightly different form in the Dutch magazine *Nederlands Tijdschrift voor Fytotherapy* Vol. 21, Issue 1, 2008, pp. 2-8.

<sup>32</sup> Gananath Obeyesekere, 1992, 'Science, Experimentation and Clinical Practice in Ayurveda'. In Charles Leslie & Allen Young (eds), *Paths to Asian Medical Knowledge*. Berkeley: University of California Press, pp. 160-77.

intestine as the location and a disorder similar to dysentery. The reversed flow (*pratiloma*) of ‘downward wind’ (*apāna vāyu*) – going up towards the head instead of towards the excretory organs – is regarded as the cause of *ajīrṇa*. The treatment starts with several herbal decoctions (*kaṣāya*). The patient feels better initially, but during the fourth visit he complains of serious constipation and rock-hard stools. Dr Fernando prescribes a *kaṣāya* for this with the following ingredients: *Piper longum* Linn. (*pippalī*), *Terminalia chebula* Retz. (*harītakī*), Sivi roots (botanical name not indicated), *Plumbago indica* Linn. (*citraka*) and *Cedrus deodara* (Roxb. ex D. Don) G. Don (*devadāru* root). According to Fernando, this combination of herbs is used in this case due to the following effects on the body. *Pippalī* promotes the ‘ripening’ (*dīpana*) of waste products (*mala*) and ensures that they move in the right direction (*anuloma*), towards the excretory organs. In addition, *pippalī* counteracts swelling in the stomach and the bowels by removing fluids. *Harītakī* ‘cooks’ the food and removes ‘toxins’ (*āma*), also by inducing vomiting. Sivi root destroys *kapha*, balances *vāta* and increases *pitta*. This last element is necessary because Fernando thinks there is a shortage of *pitta* in the patient’s stomach (*mandāgni*), which results in a lack of appetite and the food not being ‘cooked’ in the correct manner, allowing toxins (*āma*) to accumulate in the body. *Citraka* is a general remedy for stomach problems that has a cleansing effect by killing worms (*krimi*). *Śuṅṭhī* (ginger) ‘warms’ the body, as do the abovementioned three ingredients. It increases *pitta*, which allows food to be ‘cooked’ in the right way. This produces a high-quality nourishing liquid (*rasa*) which, in turn, serves as the raw material for the production of the other six body tissues (*dhātu*). In combination with the other prescribed ingredients, ginger also serves to make faeces more compact after they have lost their solid structure as a result of ‘cooking’ and ‘heating’. Together with the other ingredients, ginger helps in the excretion of faeces and urine. Finally, *devadāru* root balances the humours (*śamana*). This is necessary because the above ingredients make the body too ‘hot’. In Fernando’s treatment, we see the following Ayurvedic therapeutic mechanisms: ensuring the optimum ‘cooking’ of food to produce high-quality *dhātus* and combat the formation of ‘toxins’ (*āma*); ensuring the correct ‘direction of flow’ for *doṣas*, *dhātus* and *malas*; eliminating ‘flow blockages’; and balancing the *doṣas*.

The rationale behind the composition of the *kaṣāyas* is known as *saṃyoga* (literally: connecting). In *saṃyoga*, the composition of a medicinal herbal preparation is based on the patient’s constitution (*prakṛti*) and the patient’s symptoms (*vikṛti*). In this process, use is made of hu-

moural categories and analogies: the Ayurvedic words and grammar behind diagnosis, etiology and therapy. According to Ayurvedic pharmacology (*dravyaguṇaśāstra*), the biological effects of materia medica are explained by its taste (*rasa*), its post-digestive biological effect (*vipāka*) and the active power or potency (*vīrya*) of the herb. The description of the Ayurvedic materia medica in these terms guides the *vaidya*'s thinking when selecting ingredients, but the empirical effect of a herb and how an individual patient responds to it ultimately determine the selection of ingredients.<sup>33</sup>

### Case 2: Numbness in the limbs as a sign of aging<sup>34</sup>

Dr Iyer is an 85-year-old *vaidya* who has a home-based practice in rural Tamil Nadu (Southern India). The patient is a 60-year-old illiterate woman who has come to Dr Iyer for numbness in the soles of her feet. A lengthy conversation develops, which can be described as a directive form of advising. Iyer argues that the senses (*indriyas*) are weakening as part of growing older. The tactile stimuli that should bring life to the patient's foot are feeble; Iyer talks about a weak connection between the skin and the flesh, which he attributes to 'obstructed' blood that is poisoning the body. There are 'flow blockages' in the *srotas* that transport blood and waste products and in the transmission of external sensory stimuli. Iyer believes that the nerves of the brain, eyes, ears, nose, tongue and skin are losing their strength. Undigested food (*āma*) and poisoned blood are undermining the body. He prescribes an oil to slow down the decline of the sensory nerves caused by the patient's age. The oil must be applied before bathing and then rinsed off with warm water. He also prescribes a medicine to maintain a feeling of hunger, to allow the faeces to 'flow' after a meal, to separate the urine from the faeces and to make the body 'light'.

Iyer sees the patient's symptoms as a disruption in *vāta*, a consequence of aging. The medicines are for support only and Iyer makes it clear that 'suitable' food and 'appropriate' behaviour are more important

<sup>33</sup> Jan G. Meulenbeld, 2001, 'Reflections on the Basic Concepts of Indian Pharmacology'. In Jan G. Meulenbeld & Dominik Wujastyk (eds), *Studies on Indian Medical History*. Delhi: Motilal Banarsidass Publishers, pp. 1-16. [1987]

<sup>34</sup> Margaret Trawick, 1992, 'Death and Nurturance in Indian Systems of Healing', In Charles Leslie & Allen Young (eds), *Paths to Asian Medical Knowledge*. Berkeley: University of California Press, pp. 129-59.

for healing than the medicines he prescribes. He forbids ‘heavy’ food because this ‘coagulates’, causes dullness, and leads to numbness in the limbs; advises against eating tamarind, which makes a person lifeless and drowsy; and stresses the need to eat ‘suitable’ (*sātmya*) food regularly and in moderation. According to him flow blockages obstruct the formation and movement of *doṣa*, *dhātu* and *mala* and therefore life processes stagnate. He emphasises the connection between movement and life and repeatedly states that the patient’s symptoms come from aging. He advises her not to frequent busy markets and instead recommends outings into nature and visits to temples. Iyer places the illness in a metaphysical context. For this he makes use of cultural categories and constructs a framework in which to place life-illness-suffering-death. Just as the formation of body tissues (*dhātu*) is linked to ‘purification’ and release of the essence, the ageing body goes through a process that leads to death and the release (*mokṣa*) of the soul (*puruṣa*) from the material body (*prakṛti*) – a logic based on Hinduism and the related Sāṃkhya philosophy.

**Case 3:** Agitated *vāta-pitta* and the disruption of the body’s self-healing potential

Dr Ravi is a 50-year-old *vaidya* with both a traditional *gurukul* education and a BAMS degree. He is the medical superintendent of a small Ayurvedic hospital in the Southern Indian state of Karnataka. Patients from the more affluent sections of the Indian middle class come here for *pañcakarman* treatment, which involves intensive therapies based on the application of medicinal oils through the skin, nose, mouth and anus. Yoga *āsanas* (positions) are an essential component of the treatment. The patient is a 60-year-old Indian man who is suffering from nervousness, anxiety, insomnia and joint pain. By taking an extensive medical history from the patient, combined with Ayurvedic pulse diagnosis, Dr Ravi establishes that *vāta* and *pitta* are out of balance. A two-week *pañcakarman* (literally: five actions) treatment is required. During the first seven days, the patient undergoes ‘preoperative’ (*pūrvakarman*) procedures such as *abyaṅga* (body massage with medicinal oils), *śirodhārā* (a technique in which drops of medicinal oil are poured onto the head), and *pīlicil* (the application of oil using special compresses). All three procedures make use of *dhānvantarataila*, an oil for treating deranged *vāta* in cases of rheumatism and postnatal care. The remaining medication is

administered orally, and consists of the herbal preparation *cyavanprās*, a powder for indigestion and a laxative to expel *pitta*.

These procedures are followed by seven days of ‘operative’ procedures like *nasya* in which a heart and nerve tonic is administered through the nose to strengthen both the senses and the locomotory organs, and *mātrābasti*, a medicinal enema to detoxify the large intestine and body tissues and to pacify *vāta*. Herbal preparations like *cyavanprās* and decoctions are administered orally to the patient. The medicines and procedures must be taken and followed at set times. *Pañcakarman* is at the heart of *rasāyana* treatment, one of the eight branches of Ayurveda, with the objective to slow down ageing by bringing the *doṣa* into balance, optimising digestion and stimulating the creation of high-quality *dhātu*, including *ojas*, the seventh *dhātu* that represents vitality and the patient’s innate healing ability.

## IX Discussion

The effectiveness of a medicine is ultimately proven in the body and psyche of a patient. The well-known fact that the human body reacts to meaning can be an important asset for the successful treatment and management of illness. Positivistic research methodology, however, allows no room for ‘mindful bodies’, e.g. the fact that human beings are self-aware and reflective.<sup>35</sup> The human capacity for understanding, acceptance and incorporation dis-ease into daily life, are important assets for the successful management and treatment of many illnesses. The golden standard of the randomized controlled trial which is at the heart of modern pharmacology does not acknowledge the curing potential of meaningful human relationships.<sup>36</sup> In this way, we unnecessarily limit our understanding of the workings of medicines in human bodies and minds.

<sup>35</sup> See Nancy Schepers-Hughes & Margaret M. Lock, 1987, ‘The Mindful Body: A Prolegomenon to Future Work in Medical Anthropology’. *Medical Anthropology Quarterly* Vol 1, Issue 1, pp. 6-44.

<sup>36</sup> For a historical-epistemological critique on the Randomised Controlled Trial see Ted J. Kaptchuk, 1998, ‘Powerful Placebo: The Dark Side of the Randomised Controlled Trial’, *Lancet* Vol. 351, Issue 9117, pp 1722-25.

Furthermore, we overlook the fact that evidence-based medicine often represents an ideal, not a reality. After all, only a minority of even the treatments in academic hospitals is evidence-based. We also must take into account that positivistic evidence for the efficacy of a medicine is seldom clearcut. As in other spheres of life evidence is seldom absolute but a matter of degree.

As we have seen, positivistic research into Ayurvedic medications often ignores the individual character of the tradition from which these substances originate. Energetic humoural-pathological notions have been naïvely ‘translated’ into concepts from positivistic pharmacology and biomedicine. If we want to take the logic behind the composition, prescription and use of Ayurvedic medicines seriously then we must employ research protocols which are sensitive to Ayurvedic logics and therapeutics such as the dissolution of blockages that hinder the flow of humours and the expulsion of waste products, the balancing of the Ayurvedic humours to improve the body’s innate healing capacity, the removal of toxins and the formation of good quality tissues. Why not take these treatment objectives seriously, instead of discrediting them because they are beyond the reach of positivistic pharmacology and its research models?

This does not contradict the fact that positivistic pharmacology is a need if we want to improve the rational use of Ayurvedic medicines. Modern pharmacological research must guarantee their identity, quality and non-toxicity. Ayurveda can make strategic use of positivistic pharmacology, while bearing in mind that positivistic pharmacognosy, pharmacology and biomedicine do not represent *the* truth, but rather *a* truth, albeit one which has been well substantiated and is supported by a well organized professional community. The creation of such a forum of scientists is vital for achieving a properly substantiated Ayurvedic alternative and supplement to the biomedical approach. Such a community of researchers is a pressing need because of the widespread use of Asian medical traditions such as Ayurveda, Traditional Chinese Medicine and Tibetan medicine in India, China, the US and Europe. No single branch of medical science has a monopoly on effective medications and treatments. This is not surprising because there always is a tension between body and illness as experienced phenomena and the abstractions of medical paradigms, each of which transforms non-wellbeing in a unique way.<sup>37</sup> As long as no professional group of Ayurvedic researchers exists, complementing the positivistic approach of evidence-based medicine with Ayurveda-based evidence remains a need, hardly a reality.

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<sup>37</sup> Biomedicine and Ayurveda have their own way of ‘seeing’, ‘writing’ and ‘speaking’. It makes sense to see them as different trajectories for the professionalisation of suffering.

*I am grateful to the Vertaalfonds KNAW/Stichting Reprorecht for giving me a grant for translation and English editing. I also want to thank my informants and the many people who have commented on my work over the years. Especially the remarks of P.M. Unnikrishnan on this article have been both helpful and challenging.*