

seems to have missed the attention of researchers is that mammalian cloning offers an entirely *new evidence* in favour of evolution. If we look at the phylogenetically lower organisms like amoeba, starfish or at the upper end of spectrum, the common lawn grass (an eukaryote), cloning seems to be an everyday phenomenon! However, due to

some reasons still unclear, this remarkable heritable future of lower organisms has been slowly pushed into oblivion in eukaryotes. Nevertheless, demonstration of this latent property in mammals makes it a strong case of another 'vestigial organ' or a vestigial trait (to sound more acceptable) in eukaryotes. I am sure supporters of Darwinian theory

of evolution will find this observation most interesting.

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## Prospecting plant aids in AIDS management

'Herbal renaissance' is blooming across the world<sup>1</sup>. This prompted me to share data on certain plant aids in AIDS management. There are two ways in which AIDS can be managed by plant aids.

The first one is direct HIV virus inactivators like *Ephedra americana*, *Equisetum arvense*, *E. giganteum*, *Marrubium vulgare*, *Mintostachys mollis*, *Psoralea glandulosa*, *Senecio mathewsii*, *Xanthium spinosum* and so on. The action is based on the studies by Edward Robinson<sup>2</sup>. A survey of the recent volumes (1997–1999) of *Central Aromatic and Medicinal Plants Abstracts* shows intensive chemical research on plant aids as HIV – Reverse Transcriptase (RT) inhibitors in Korea, Taiwan, Thailand, Japan and USA. Yamamoto and his coworkers screened 413 Thai plants. Plants with high anionic polysaccharides inhibited RT and prevented gp.120 and CD4 binding *in vitro*. To this category belongs the common weed *Merremia peltata* of Convolvulaceae. Hence, *M. emarginata* Hallier f. from India deserves investigation. Flavonoids of *Plantago asiatica* L. are effective HIV inhibitors as observed by Nishibe and his coworkers. The species is a common Indian drug known as *Ishabgul* and needs investigation as an anti-HIV source.

The pyrenocoumarins from *Calophyllum teysmannii*, and *C. lanigerum* (Clusiaceae) are specific HIV–RT inhibitors. Further, bark of *Berchemia*

*berchemiaefolia* (Rhamnaceae), leaves of *Lindsea erythrocarpa* (Lauraceae) and whole plants of *Sigesbeckia pubescens* (Asteraceae) were found to inhibit HIV-1 protease to the extent of 56.2%, 50.8% and 46.6%, respectively. Water extracts from the leaves of *Ficus carica* (Moraceae), and *Houttuynia cordata* (Saurauraceae) (> 79%); *Syringa dilatata*, (Oleaceae) and *Hibiscus syriacus* (Malvaceae) (> 40%), inhibited RT-protease activity. Various degrees of anti-HIV activity were demonstrated with compounds from *Annona glabra* (Annonaceae) and *Hopea malibato* (Dipterocarpaceae).

Next, let us consider immunity promoters. If the general immunity is strengthened, half the war with AIDS is won. The deterioration of immunity has been highlighted in Ayurveda. The species recommended are tubers of *Asparagus racemosus*, roots of *Withania somnifera*, stems of *Tinospora condifolia*, tubers of *Ipomoea mauritiana*, *Leptadenia reticulata*, decoction of *Azadirachta indica* and seed powders of *Glycyrrhiza glabra*. These plants have also been enlisted as immunopromoters<sup>3</sup>.

Certain aromatic plants act as immunostimulants<sup>4</sup>. The species are *Boswellia carteri*, *Inula graveolens*, *Malaleuca alternifolia*, *M. viridiflora*, *Pogostemon patchouli* (= *P. cablin*<sup>5</sup>) and *Thymus vulgaris*. Oral doses of 30 ml of plant extracts or thick topical

massage smears (at presumable lymphocyte bases) resulted in remarkable rise of T helper cell count.

Gradual loss of immunity, also called 'Kshaya', is known since centuries. This reduction of resistance leads to predisposition for infection. The only known AZT chemotherapy for HIV itself is said to reduce the general immunity status of the AIDS patient!

Immunity conservation, promotion and stimulation are the sustainable measures to keep away from the syndrome.

I acknowledge, the *Current Science* special issue on AIDS in Asia (1995, 69) for providing basic stimulus to explore immuno-strengthening therapies.

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