



## JRK'S ANTI- COFF – AN EFFECTIVE REMEDY FOR REACTIVE OXYGEN SPECIES SCAVENGING

Soundharya R, Aruna V, Amruthavalli GV, Gayathri R

Dr. JRK's Research & Pharmaceuticals Pvt. Ltd.

No.18 & Perumal Koil Street, Kunrathur, Chennai- 600069

**Article Info:** Received 03 January 2019; Accepted 25 January. 2019

**Cite this article as:** R, S., V, A., GV, A., & R, G. (2019). JRK'S ANTI- COFF – AN EFFECTIVE REMEDY FOR REACTIVE OXYGEN SPECIES SCAVENGING. *Journal of Drug Discovery And Therapeutics*, 7(1)

**DOI:** <https://doi.org/10.32553/jddt.v7i1.446>

**Address for Correspondence:** Aruna V, Dr. JRK's Research & Pharmaceuticals Pvt. Ltd.

**Email address-** [aruna\\_v@jrkresearch.com](mailto:aruna_v@jrkresearch.com), [research@jrkresearch.com](mailto:research@jrkresearch.com)

**Disclosure statement:** *The authors have no conflicts of interest.*

### ABSTRACT

JRK's Anti-coff was studied for reactive oxygen species scavenging benefit in order to establish the anti-oxidant therapeutic benefit. Findings clearly show that the herbs used in JRK's Anti-coff such as *Anisochilus carnosus*, *Leucas aspera*, *Ocimum sanctum*, *Solanum trilobatum*, *Acalypha indica*, and *Adhatoda vasica* showed antioxidant effect. We have attempted to co-relate the above benefit of JRK's Anti-coff with the blood purification benefit postulated by Ayurveda and Siddha. Further the importance of blood purification for the treatment of several diseases is discussed.

**Keywords:** *Ocimum sanctum*, ROS, Blood purification effect, JRK's Anti- coff

### INTRODUCTION

Medicinal herbs are used not just for obtaining lead pharmaceutical drug molecules but the plant as a whole is also used for treating various diseases in Indian systems of medicine such as Ayurveda and Siddha [1,2]. In Ayurveda and Siddha systems of medicine, blood purification is considered to be an important strategy in the treatment of several diseases. The modern science has not understood much about blood purification concept of Ayurveda and Siddha or its importance [3, 4].

Our earlier studies have proven that JRK's Anti-Coff boosts the phagocyte mediated immunity and thereby reduce burden of antigens in the blood. In order to understand the mechanism of action of JRK's Anti-Coff in offering blood purification benefit we have undertaken the present study. We have employed reactive oxygen species scavenging

(Antioxidant) assay to establish the above benefit of JRK's Anti-Coff.

JRK's Anti-Coff is a proprietary Siddha formulation composed of *Anisochilus carnosus*, *Leucas aspera*, *Ocimum sanctum*, *Solanum trilobatum*, *Acalypha indica*, and *Adhatoda vasica*. All the herbs used in JRK's Anti-Coff are proven to have several medicinal properties by earlier studies.

We have screened each herb individually for antioxidant benefit. Findings of the study clearly show that all the medicinal plants used in the formulation of JRK's Anti-Coff have strong antioxidant effect and which validates the concept of blood purification as stated profoundly in Ayurveda and Siddha systems of medicine.

JRK's Anti-Coff is the first product to the best of our knowledge scientifically proven to have the blood purification effect. Details are discussed in the paper.

## Materials and Methods

### Anti-oxidant (DPPH) or Free Radical Scavenging Assay

DPPH is a common abbreviation for an organic chemical compound 2,2 diphenyl-1-picrylhydrazyl. It is a dark colored crystalline powder composed of stable free radical molecules capable to monitor the chemical reactions involving free radicals. Most notably it is a common antioxidant and a standard to control the intensity of the electron paramagnetic resonance signals.

The DPPH assay method is based on the reduction of DPPH, a stable free radical. The free radical DPPH with an odd electron gives a maximum absorption at 517 nm (purple colour). When antioxidants react with DPPH, the molecule is reduced to the DPPHH and as consequence the absorbance decreases. The reduction of DPPH to DPPH-H results in more or less decolorization (yellow colour) with respect to the number of electrons captured. More the decolorization, more is the reducing ability of the test material. This test has been the most accepted model for evaluating the free radical scavenging activity of many chemical compounds [5].

When a solution of DPPH is mixed with the in-study substance, it can donate a hydrogen atom giving rise

to the reduced form of di phenyl picryl hydrazine; a non-radical with the loss of violet colour (although there would be a residual pale yellow colour from the picryl group if present).

DPPH free radical scavenging activity of the following herbs such as *Anisochilus carnosus*, *Leucas aspera*, *Ocimum sanctum*, *Solanum trilobatum*, *Acalypha indica*, and *Adhatoda vasica* were studied. Different concentrations of the herbal extracts of above plants such as 1, 2, 3mg/ml and was added to ethanol solution of DPPH radical. The final concentration was adjusted to 0.1mM. The mixture was shaken vigorously for 1 minute by vortexing and left to stand at room temperature in dark condition for 30 minutes. The absorbance of the samples was measured using UV 160 spectrophotometer at 517nm against ethanol blank. A negative control was taken after adding DPPH solution to 0.2ml of water. The percent of DPPH discoloration of the sample was calculated according to the equation

$$\% \text{ discoloration} = [1 - (\text{sample/control})] \times 100.$$

### Results

*Anisochilus carnosus* and *Leucas aspera* showed high antioxidant activity whereas other herbs although possessed antioxidant effects, the activity was relatively poor. Table- 1

**Table 1: Reactive oxygen species scavenging effect of JRK's Anti-Coff ingredients**

Name of the herbs	% inhibition/ Concentration in mg/ml		
	1	2	3
<i>Anisochilus carnosus</i>	67.3	69.2	71.8
<i>Leucas aspera</i>	51.0	54.3	54.9
<i>Ocimum sanctum</i>	36.7	37.6	39.10
<i>Solanum trilbatum</i>	44.8	45.1	48.3
<i>Acalypha indica</i>	18.3	19.0	19.5
<i>Adathoda vasica</i>	44.8	45.2	45.7

### Discussion

Free radicals are otherwise called as reactive oxygen species that pose a major threat to our health these days. Several degenerative disorder and even cancer is caused by free radicals. Our defense system has excellent free radical scavenging mechanism and often it is performed by glutathione, an auto-

antioxidant agent produced in our system [6,7]. Due to several health reasons free radical generation shall remain uncurbed and that leads to several degenerative disorders such as psoriasis, parkison's disease, Alzhemier disease etc [8].

In upper respiratory tract infections and infections due to microbes are known to result in free radical

generation [9]. Therefore scavenging the free radicals is the important treatment strategy even in modern medicine. Since the free radicals shall accumulate even in blood, therefore they need to be cleared regularly even from blood. This proven science of modern medicine revalidates the extraordinary concept called blood purification and its importance in the treatment of several diseases as stated by Ayurveda and Siddha.

Indigenous systems of medicine such as Ayurveda and Siddha always enable the human system to combat the disease rather than targeting the disease. Boosting immunity, purgation, blood purification etc., are the common treatment strategies adopted in Ayurveda and Siddha system of medicine. Usually a diet regimen is recommended as initial step of therapy. Our study proving the antioxidant effect of various herbs used in JRK's Anti-Coff proves that most of the medicinal plants have multi-various therapeutic benefits. This finding loudly supports the fact that nature has answers to all human problems if they are understood properly and followed. Unlike modern medicine where the drug has highly target specific therapeutic benefit Siddha drugs are broad spectrum with great bandwidth of therapeutic benefits. Further most of such benefits are complementary in nature.

JRK's Anti-Coff is formulated with careful understanding of medicinal herbs, tenets of Siddha system of medicines and the cardinal principle of treatment approach of Siddha system of medicine i.e., blood purification. Our present study has clearly established that all the plants used in JRK's Anti-Coff have antioxidant effect essential for the treatment of upper respiratory tract infections.

Our earlier studies have clearly established that JRK's Anti-Coff effectively boost phagocytosis, mucolytic and muco-constriction activity and reduce glucose diffusion [10]. The present finding has come as crown to the proven therapeutic effect of JRK's Anti-Coff and to siddha system of medicine.

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