



Research Article

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A COMPARATIVE CLINICAL STUDY OF BLACK AND WHITE SEEDS OF KAPIKACCHU WITH SPECIAL REFERENCE TO VRISHYA KARMA

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Received on: 17/04/17 Accepted on: 30/05/17

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DOI: 10.7897/2277-4343.083182

ABSTRACT

Klaibya is common among men of all ages. The Male Sexual Dysfunction (MSD) has been elaborately described as Klaibya in Ayurvediya classics. Kapikacchu seeds are used for the purpose of Vrishya Karma. In market two types of seeds are available and are being used simultaneously in the name of Kapikacchu. There is marked difference between the retail pricing of both the types although no data is available about the comparative analysis based on their efficacy in Vrishya Karma. So the present study is proposed to re-establish and compare the Vrishya effect of both types of Kapikacchu seeds as both are easily available and economically more viable. A clinical trial on 30 patients of klaibya was carried out. They were divided randomly into 2 groups, each group having 15 patients. In group-A Kapikacchu churna of black seeds and in another group-B kapikacchu churna of white seeds, in the dose of 5 gm twice/day with anupana of luke warm milk was administered for 30 days. Assessment was made on the basis of subjective and objective criteria. It was observed during clinical study that black seeds of Kapikacchu (group A) comparatively give more percentage relief on all subjective parameters i.e. Erectile function, orgasmic function, Sexual desire, Intercourse satisfaction; as well as objective parameters i.e. semen volume, total sperm count, RLP, NP and IM sperms. Both seeds of Kapikacchu are very potent Vrishya and Vajikarana Aushadhi but black variety (*Mucuna pruriens* (L.) DC.) has shown still better results when compared to white variety (*Mucuna pruriens* (L.) DC. var. *utilis*).

Key words: Erectile dysfunction, Klaibya, Atmaguta, sexual disorders, *Mucuna pruriens*

INTRODUCTION

Ayurveda being the science of life not only deals with the health and illness of human beings but also emphasises on the social desires of human beings of satisfactory sexual life. Sexual desire is a natural phenomenon in human beings as well as in animals for multiplication of living beings, and getting good, healthy and intellectual offspring, which is a need for healthy society. Male sexual dysfunctions (MSD) have been elaborately described under the broad heading of Klaibya in Ayurvediya classics. MSD are the most common psychosexual disorders in clinical practice. It refers to a problem during any phase of the sexual response cycle that prevents the man from experiencing satisfaction from the activity. Male Sexual Dysfunction (M.S.D.) or "Impotence" can be defined as a "man's inability to attain or maintain an erection of sufficient strength to perform the act of intercourse".

Acharya Charaka has given a very justified definition of "Klaibya" as- though always cherishing a strong desire (for sexual union) and though possessing a beloved and obedient wife, yet one is unable through loss of rigidity of one's organ to indulge in sexual union, or indulges in it very rarely. Even if he manages to have an erection, his anxiety will cause attacks of dyspnoea and profuse sweating and his attempt of having sex will result in failure. This deformity is defined as "KLAIBYA" (Male sexual Dysfunction)¹.

MSD is a broad spectrum terminology, under which erectile dysfunction is one of the major components. 20% men under the age 40 years are affected by erectile dysfunction, which is the commonest hidden cause of breaking marital relation in Indian society. It is estimated that in 1995 there were over 152 million men worldwide who had erectile dysfunction and in 2025 the number of men with erectile dysfunction will be approximately 322 million, an increase of nearly 170 million men². Infertility is yet another component under the heading of MSD and 15-20 % of all cohabiting couples are infertile. Of these, in up to 50 % of cases it is the male factor or the husband who is responsible for the infertility.

Hence, it is the need of hour to conduct researches for finding out safe, easily available, economic and potent medicines for the management of Klaibya. Kapikacchu is described as Vrishya Dravya in Samhita³(Classical texts) as well as Nighantus⁴(Lexicons). In market two types of seeds (black seeds⁵ and white seeds⁶) are available and are being used simultaneously in the name of Kapikacchu. Botanically Black variety is *Mucuna pruriens* (L.) DC. while white variety is *Mucuna pruriens* (L.) DC. var. *utilis*. There is marked difference between the retail pricing of both the types although no data is available about the comparative analysis based on their efficacy in Vrishya Karma (aphrodisiac action). So the present study is proposed to re-establish and compare the Vrishya effect of both types of Kapikacchu seeds as both are easily available and economically more viable.

MATERIALS AND METHODS

Collection and Authentication of Drug

Both seeds (black and white) of Kapikacchu were collected from field after proper identification. Seeds were identified and authenticated from botany department of Rajasthan University with the identification no. RUBL211492. Seeds were purified, dried, powdered and taken for further study.

Method of Purification of Kapikacchu seeds

Purification of Kapikacchu seeds is done by Swendana vidhi which is mentioned in Vanari gutika prakarana in Bhaisajya Ratnawali⁷. One Kudava *matra* of kapikacchu seeds have been taken and dip into one prastha *matra* of Go-dugdha (1 prastha = 4 Kudava). Then boiled it in medium heat for an hour. When the solution gets concentrated then Kapikacchu seeds separated out from the Go-dugdha. After then seed coat of Kapikacchu removed from seeds. These seeds are purified seeds of Kapikacchu.

Selection of patients

For the present study, 30 male patients fulfilling the clinical criteria for diagnosis of Klaibya (MSD) were selected from OPD of National Institute of Ayurveda Hospital and Seth Soorajmal Bambaiwala Hospital, Jaipur irrespective of religion, cast, occupation etc.

Inclusion criteria

1. Male patients in the age of 20-60 years.
2. Male patients having sign and symptoms of klaibya.

Exclusion criteria

1. Patients below 20years and above 60years.
2. Patients with chronic disease like severe hypertension, IHD, COPD, etc.
3. Patients with primary and secondary azoospermia.
4. Patients having any sexually transmitted diseases.
5. Erectile dysfunction due to nerve damage ex. Accidental injury like spinal cord injury and due to surgery of colon, prostate, bladder and rectum.

Method of study (protocol of Study)

The study was cleared by the Institutional Ethics Committee of National Institute of Ayurveda, Jaipur, Rajasthan. Ethical clearance no. is F10(5)/EC/2014/7221. The study is carried out as per International conference of Harmonization-Good Clinical Practices Guidelines (ICH-GCP). Written informed consent was taken on prescribed Proforma from each patient willing to participate before the start of study. They are briefed about merits and demerits of research plan before taking consent. Patients were free to withdrawal from the study at any time without giving any reason. A detailed proforma was prepared incorporating Ayurvediya as well as modern points. Observations were made according to the standard Ayurveda parameters selected and findings were recorded in well-designed proforma.

Grouping and administration of drug

30 clinically diagnosed and registered patient of Klaibya were divided randomly into 2 groups, each group having 15 patients.

Group A- Kapikacchu churna (black seeds) was given in the dose of 5 gm twice/day with lukewarm milk for a period of 30 days.

Group B- Kapikacchu churna (white seeds) was given in the dose of 5 gm twice/day with lukewarm milk for a period of 30 days.

Criteria for assessment

The assessment of the patients was done based on subjective as well as objective criteria during the course of trial treatment. The final assessment was done on the basis of the both parameters and by comparing the laboratorial investigation before and after the treatment.

Subjective criteria

The International Index of Erectile Function 15 items (IIEF-15) was used at baseline day, day 15 and day 30. IIEF-15 questionnaire was adopted to rule out the sexual problems in the individual and for the assessment of the result⁸.

Objective criteria

Semen analysis was done on baseline and final day of study.

Statistical analysis

All the Results were calculated by using Software InStat Graph Pad 3. For nonparametric data Wilcoxon matched-pairs signed ranks test is used while for parametric data Paired 't' test is used and results Calculated in each group.

OBSERVATIONS AND RESULTS

Demographic profile

A majority of Klaibya patients i.e. 53.33% were in the age group of 20-30 years, 83.33% of the patients belonged to Hindu religion, 43.33% were educated up to graduation, 40% belonged to middle class, 76.66% were living in urban areas and 53.33% patients had the history of being vegetarian regarding their food habit. A major proportion of the patients i.e. 40% of the patients were involved in field work, 60% patients had sound sleep and 46.66% patients had the addiction of tea and few patients had the history of smoking, tobacco and alcohol consumption.

In this study, majority of patients i.e. 50% patients were of Vatta-Pitta type of Sharirika Prakriti whereas 60% patients were of Rajasika type of Mansika Prakriti. The maximum number of patients had Manda Agni (46.66%), Madhyama Kosta (60%), Madhyama Sara (60%), Madhyama Samhanana (70%), Madhyama Pramana (63.33%), Madhyama Satmya (63.33%), Avara Satva (56.66%), Madhyama Ahara Shakti (50%) and Avara Vyayama Shakti (43.33%).

RESULTS

The results were considered as bellow-

Insignificant/Non significant: P >0.05

Significant: P <0.05

Highly significant: P < 0.01, P < 0.001, P < 0.0001

Effect of therapy on subjective parameters (Table 1)

Effect of Therapy on Erectile function score: In Group A the mean Score before treatment was 13.26 which increase up to 16.53 after treatment, with SD±0.96 giving a relief of 24.66% which was statistically highly significant (p < 0.0001). In Group B the mean Score before treatment was 14.80 which increased up to 17.66 after treatment, with SD±0.51 giving a relief of 19.32% which was statistically highly significant (p < 0.0001).

Effect of Therapy on Orgasmic function score: In Group A the mean Score before treatment was 7.60 which increased up to 8.13 after treatment, with $SD\pm 0.74$ giving a relief of 6.97% which was statistically significant ($p < 0.05$). In Group B the mean Score before treatment was 7.26 which increased up to 7.53 after treatment, with $SD\pm 1.10$ giving a relief of 3.71% which was statistically non-significant ($p > 0.05$).

Effect of Therapy on Sexual desire score: In Group A the mean Score before treatment was 5.20 which increased up to 7.53 after treatment, with $SD\pm 1.23$ giving a relief of 44.80% which was statistically highly significant ($p < 0.0001$). In Group B the mean Score before treatment was 6.33 which increased up to 8.06 after treatment, with $SD\pm 0.96$ giving a relief of 27.33% which was statistically highly significant ($p < 0.0001$).

Effect of Therapy on Intercourse satisfaction score: In Group A the mean Score before treatment was 4.53 which lowered down to 3.86 after treatment, with $SD\pm 1.39$ giving a relief of 14.79% which was statistically non-significant ($p > 0.05$). In Group B the mean Score before treatment was 4.13 which lowered down to 3.66 after treatment, with $SD\pm 1.30$ giving a relief of 11.38% which was statistically non-significant ($p > 0.05$).

Effect of Therapy on Overall satisfaction score: In Group A the mean Score before treatment was 4.20 which increased up to 4.80 after treatment, with $SD\pm 0.82$ giving a relief of 14.28% which was statistically significant ($p < 0.05$). In Group B the mean Score before treatment was 4.40 which increase up to 5.20 after treatment, with $SD\pm 0.94$ giving a relief of 18.18% which was statistically significant ($p < 0.05$).

(2) Effect of therapy on seminal parameters (objectives parameters) (Table 2)

Effect of Therapy on Semen volume Score in Both Groups: In Group A the mean Score before treatment was 2.36 which increased up to 2.63 after treatment, with $SD\pm 0.59$ giving an improvement of 11.44% which was statistically non-significant ($P > 0.05$). In Group B the mean Score before treatment was 2.30 which increased up to 2.36 after treatment, with $SD\pm 0.41$ giving an improvement of 2.60% which was statistically non-significant ($P > 0.05$).

Effect of Therapy on Semen pH Score in Both Groups: In Group A the mean Score before treatment was 7.63 which increased up to 7.74 after treatment, with $SD\pm 0.43$ giving an improvement of 1.44% which was statistically non-significant ($P > 0.05$). In Group B the mean Score before treatment was 7.66 which increased up to 7.75 after treatment, with $SD\pm 0.54$ giving an improvement of 1.17% which was statistically non-significant ($P > 0.05$).

Effect of Therapy on Total Sperm Count Score in Both Groups: In Group A the mean Score before treatment was 20.00 which increased up to 27.66 after treatment, with $SD\pm 4.95$ giving an improvement of 38.30 % which was statistically highly significant ($P < 0.0001$). In Group B the mean Score before treatment was 23.13 which increased up to 26.26 after treatment, with $SD\pm 2.94$ giving an improvement of 13.53% which was statistically highly significant ($P < 0.001$).

Effect of Therapy on RLP Score in Both Groups: In Group A the mean Score before treatment was 39.33 which increased up to 45.33 after treatment, with $SD\pm 4.30$ giving an improvement of 15.25% which was statistically highly significant ($P < 0.0001$). In Group B the mean Score before treatment was

48.00 which increased up to 51.33 after treatment, with $SD\pm 2.44$ giving an improvement of 6.93% which was statistically highly significant ($P < 0.0001$).

Effect of Therapy on SLP Score in Both Groups: In Group A the mean Score before treatment was 20.00 which increased up to 20.33 after treatment, with $SD\pm 4.41$ giving an improvement of 1.65% which was statistically non-significant ($P > 0.05$). In Group B the mean Score before treatment was 19.33 which increased up to 20.33 after treatment, with $SD\pm 3.87$ giving an improvement of 5.17% which was statistically non-significant ($P > 0.05$).

Effect of Therapy on NP Score in Both Groups: In Group A the mean Score before treatment was 15.66 which lowered down to 12.00 after treatment, with $SD\pm 4.41$ giving an improvement of 23.37% which was statistically significant ($P < 0.05$). In Group B the mean Score before treatment was 12.00 which lowered down to 10.00 after treatment, with $SD\pm 2.53$ giving an improvement of 16.66% which was statistically significant ($P < 0.05$).

Effect of Therapy on IM Score in Both Groups: In Group A the mean Score before treatment was 25.33 which lowered down to 22.33 after treatment, with $SD\pm 4.14$ giving an improvement of 11.84% which was statistically significant ($P < 0.05$). In Group B the mean Score before treatment was 20.66 which lowered down to 18.66 after treatment, with $SD\pm 4.14$ giving an improvement of 9.68% which was statistically non-significant ($P > 0.05$).

Intergroup comparison in subjective parameters of both groups (Table 3)

To access the efficacy of two therapies intergroup comparison was done. As the variables are nonparametric we used Mann-Whitney Test for statistical analysis. The p value is > 0.05 that is statistically non-significant which shows that there is no statistical difference in efficacy of both treatments on all subjective parameters.

Intergroup comparison in objective parameters of both groups (Table 4)

The p value is > 0.05 that is statistically non-significant which shows that there is no statistical difference in efficacy of both treatments on all objective parameters.

DISCUSSION

The demographical profile of present study reveals that Klaibya is prevailing in the age group of 20-30 years. On an average, it is observed that active sexual life begins at 25 years and after a series of satisfactory sexual acts, due to presence of anxiety, mental stress and strain, it is more prevalent in the age group 20-30, the sexual behaviour is greatly affected which results in Sexual dysfunction or Infertility. Maximum numbers of patients were from graduation group. The probable cause may be that in this period people are keener to their future, so they might be in more stress hence leading to Klaibya. Maximum numbers of patients were from the Middle-class community. Middle class cannot afford current costly diagnostic test and drug treatment hence they prefer Government Hospitals where in the drug treatment and the tests are at very affordable cost or almost free. Probably because of the above reason, such category patients were found more. Maximum patients belonged to urban habitat. Maximum patients were having Avara Vyayama Shakti.

Table 1: Effect of therapy on subjective parameters (Wilcoxon matched paired single ranked test)

Variable	Gr.	Mean		Mean Diff.	% Relief	SD±	SE±	p value	S
		BT	AT						
Erectile function	Gr. A	13.26	16.53	3.27	24.66%	0.96	0.24	< 0.0001	HS
	Gr. B	14.80	17.66	2.86	19.32%	0.51	0.13	< 0.0001	HS
Orgasmic function	Gr. A	7.60	8.13	0.53	6.97%	0.74	0.19	< 0.05	S
	Gr. B	7.26	7.53	0.27	3.71%	1.10	0.28	>0.05	NS
Sexual desire	Gr. A	5.20	7.53	2.33	44.80%	1.23	0.31	< 0.0001	HS
	Gr. B	6.33	8.06	1.73	27.33%	0.96	0.24	< 0.001	HS
Intercourse satisfaction	Gr. A	4.53	3.86	0.67	14.79%	1.39	0.36	>0.05	NS
	Gr. B	4.13	3.66	0.47	11.38%	1.30	0.33	>0.05	NS
Overall satisfaction	Gr. A	4.20	4.80	0.60	14.28%	0.82	0.21	<0.05	S
	Gr. B	4.40	5.20	.80	18.18%	0.94	0.24	<0.05	S

Gr: Group, HS: Highly Significant, S: Significant, NS: Non Significant, BT: Before Treatment, AT: After Treatment

Table 2: Effect of therapy on seminal parameters (objectives parameters): (paired 't' test)

Variable	Gr.	Mean		Mean Diff.	% Relief	SD±	SE±	t value	P value	S
		BT	AT							
Semen volume	A	2.36	2.63	0.27	11.44%	0.59	0.15	1.740	> 0.05	NS
	B	2.30	2.36	0.06	2.60%	0.41	0.10	0.619	> 0.05	NS
Semen pH	A	7.63	7.74	0.11	1.44%	0.43	0.11	0.960	> 0.05	NS
	B	7.66	7.75	0.09	1.17%	0.54	0.14	0.614	> 0.05	NS
Total Sperm count	A	20.00	27.66	7.66	38.30%	4.95	1.27	5.996	< 0.0001	HS
	B	23.13	26.26	3.13	13.53%	2.94	0.76	4.115	< 0.001	HS
RLP	A	39.33	45.33	6.00	15.25%	4.30	1.11	5.392	<0.0001	HS
	B	48.00	51.33	3.33	6.93%	2.44	0.62	5.292	<0.0001	HS
SLP	A	20.00	20.33	0.33	1.65%	4.41	1.14	0.292	> 0.05	NS
	B	19.33	20.33	1.00	5.17%	3.87	1.00	1.000	>0.05	NS
NP	A	15.66	12.00	3.66	23.37%	4.41	1.14	1.310	< 0.05	S
	B	12.00	10.00	2.00	16.66%	2.53	.65	3.214	< 0.05	S
IM	A	25.33	22.33	3.00	11.84%	4.14	1.06	2.806	< 0.05	S
	B	20.66	18.66	2	9.68%	4.14	1.06	1.871	> 0.05	NS

Gr- Group, RLP-Rapid linear progressive, SLP- Sluggish linear progressive, NP- Non progressive, IM- Immotile, BT: Before Treatment, AT: After Treatment

Table 3: Intergroup comparison in subjective parameters of both groups (Mann-Whitney test)

Variable	Group	(AT-BT) Diff. mean	SD±	SE±	P	S
Erectile function	A	3.26	0.439	0.087	> 0.05	NS
	B	2.86	0.408	0.081		
Orgasmic function	A	0.533	0.50	0.10	> 0.05	NS
	B	0.266	0.97	0.195		
Sexual desire	A	2.33	0.47	0.09	> 0.05	NS
	B	1.66	0.50	0.10		
Intercourse satisfaction	A	0.66	0.47	0.09	> 0.05	NS
	B	0.46	0.50	0.10		
Overall satisfaction	A	0.60	0.82	0.21	> 0.05	NS
	B	0.80	0.94	0.24		

BT: Before Treatment, AT: After Treatment

Table 4: Intergroup comparison in objective parameters of both groups (unpaired 't' test)

Variable	Gr.	(AT-BT) Diff. mean	SD±	SE±	t value	P	S
Semen volume	A	0.266	0.593	0.153	1.068	> 0.05	NS
	B	0.066	0.416	0.107			
Semen pH	A	0.106	0.430	0.111	0.1114	> 0.05	NS
	B	0.086	0.546	0.141			
Total sperm count	A	4.00	5.732	1.480	0.5207	> 0.05	NS
	B	3.13	2.949	0.761			
RLP	A	4.667	2.289	0.590	1.544	> 0.05	NS
	B	3.333	2.440	0.629			
SLP	A	0.333	4.419	1.141	0.4394	> 0.05	NS
	B	1.000	3.873	1.000			
NP	A	3.667	4.419	1.141	1.267	> 0.05	NS
	B	2.000	2.535	0.654			
IM	A	3.000	4.140	1.069	0.6614	> 0.05	NS
	B	2.000	4.140	1.069			

BT: Before Treatment, AT: After Treatment

Table 5: Comparison of percentage relief in subjective parameters of both groups

Subjective parameters	% Relief in Group A	% Relief in Group B
Erectile function	24.66%	19.32%
Orgasmic function	6.97%	3.71%
Sexual desire	44.80%	27.33%
Intercourse satisfaction	14.79%	11.38%
Overall satisfaction	14.28%	18.88%

Table 6: Comparison of percentage relief in objective parameters of both groups

Parameter	Percentage of Relief	
	Group A	Group B
Semen volume	11.44%	2.60%
Total Sperm Count	38.30%	13.53%
RLP	15.25%	6.93%
SLP	1.65%	5.17%
NP	23.37%	16.66%
IM	11.84%	9.68%

Hence it can be deduced that sedentary lifestyle predominant in urban habitat is more likely to precipitate the disease.

Patients having Raja and Tama Mansika doshas are more prone to develop Klibya in later stages of their life cycle. Majority of patients belonged to Vata-Pitta prakriti. Vataprakrti Purusha will have Alpa Santana⁹. Pittaprakrti Purusha will have Alpa Shukra, Alpa Vyavaya Shakti & will have Alpa Santata by virtue of Katu-Amla Rasa of Pitta Dosha¹⁰. Hence it may be inferred that either Vata or Pitta association in Sharira Prakriti may make the person more susceptible for Klibya. Maximum no. of patients had Manda Agni and Madhyma Koshtha.

It is observed after the comparison of results between both groups that black seeds of Kapikacchu (group A) give more percentage relief on all subjective parameters i.e. Erectile function, orgasmic function, Sexual desire, Intercourse satisfaction. It is also observed that comparatively black seeds of Kapikacchu give more percentage relief on the clinical parameters i.e. semen volume, total sperm count, RLP, NP and IM sperms whereas white seeds of Kapikacchu give more percentage relief only on the SLP sperms. (Table 5 & 6)

Probable mode of action of drug

Kapikacchu seeds possess Madhura Rasa, Guru & Snigdha Guna, Madhura Vipaka and Sheeta Virya. Guru & Snigdha Guna and Madhura Rasa have been mentioned as among the six qualities of Vrishya Dravya by Acharya Charaka¹¹. Here Guru, Snigdha Guna and Madhura Rasa are similar to the properties of Shukra¹² hence it definitely increases the Shukra by Samanya Vishesha Siddhanta. Kapikacchu has Madhura Rasa which is called as Sharira Satmya, Shukrabhivardhana and Marutaghna, hence it directly increases Shukra, can be used in Shukra dusti specially Vataja Shukradusti. It has Madhura Vipaka which is called as Sristavinmutra and Shukrala hence acts as Vrishya and helps to increase as well as ejaculate Shukra. It has Sheeta Virya, so it can be used to delay ejaculation in case of premature ejaculation. Kapikacchu gives better effect on sexual parameters by alleviating the Vata Dosha due to its Guru and Snigdha Guna, which is the root cause in the manifestation of Klibya. Thus because of properties like Madhura Rasa and Guru, Snigdha Guna Kapikacchu seeds demonstrate Vrishya, Balya, Brihana, Vajikara actions. It improves vigour and vitality. It increases stamina and libido and acts as a restorative nutrient for the nervous system by supporting healthy production of the sex hormones.

Kapikacchu seeds are rich source of L-DOPA and its metabolites which stimulate the hypothalamus and forebrain to secrete gonadotropin releasing hormone (GnRH) which regulates the anterior pituitary gland to secrete FSH and LH causing increased synthesis of testosterone by Leydig cells of the testis^{13,14}. *Mucuna pruriens* therapy rectifies the perturbed alanine, citrate, GPC, histidine and phenyl alanine content in seminal plasma and improves the semen quality¹⁵ and significantly ameliorated psychological stress by elevating serum cortisol and seminal plasma lipid peroxide level and decreasing seminal plasma glutathione (GSH), ascorbic acid contents and reduced superoxide dismutase (SOD) and catalase activity¹⁶.

CONCLUSION

Both types of seeds of Kapikacchu (black and white) have increased the erectile function, sexual desire and overall satisfaction significantly and orgasmic function marginally. Both types of seeds of Kapikacchu have increased semen volume, pH of Semen, total Sperm count, RLP sperm and decreased NP and IM sperm significantly. Black seeds of Kapikacchu were better in this regard. On percentage of relief it can be said that black seeds of kapikacchu have given more results as compared to white seeds but it is not significant. No side effect was observed during the course of clinical study. As sexual dysfunctions and infertility result from a combination of psychological and physical factors, psychological counselling may help to reduce anxiety and overcome the conditions.

Thus it can be concluded that although both germplasms of Kapikacchu are very potent Vrishya and Vajikarana Aushadhi, Black variety (*Mucuna pruriens* (L.) DC.) has shown still better results when compared to white variety (*Mucuna pruriens* (L.) DC. var. *utilis*).

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Cite this article as:

Tarun Sharma et al. A comparative clinical study of black and white seeds of *Kapikacchu* with special reference to *Vrishya karma*. Int. J. Res. Ayurveda Pharm. 2017;8(Suppl 3):121-126 <http://dx.doi.org/10.7897/2277-4343.083182>

Source of support: Nil, Conflict of interest: None Declared

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