

Pharmaceutical Standardization of Krishna Jiraka Arka

Dr. Bhupesh Kumar ^{1*}, Dr. Pronab Haldar²

^{1*}Phd scholar & Assistant Professor
Mandsaur University, Mandsaur (M.P.)

²HOD & Professor
Mandsaur University, Mandsaur (M.P.)

Email- bhupesh.parihar@gmail.com,

Abstract-

Arka Kalpana is one of the liquid dosage forms among Panchavidha Kashaya Kalpana mentioned in Arka Prakasha. Krishna Jiraka Arka is an important formulation which is used in eye disorders, gulma (Abdominal lump), chardi (Vomiting) and atisara (Diarrohea). Till today no pharmaceutical work has been carried out on Krishna Jiraka Arka. So an attempt has been carried out to make SOP about pharmaceutical standardization about Krishna Jiraka Arka.

In this present study detailed pharmaceutical procedures and observations occurred during the preparation of Krishna Jiraka Arka has been discussed.

Key word- Arka, Krishna Jiraka.

Introduction-

Arka Kalpana is a unique preparation in which water soluble active principles and essential oils from the herbal drugs are extracted through steam distillation method¹. Arka Kalpana is one of the Ayurvedic classical dosage forms. In Arka Prakasha Panchavidha Kashaya Kalpana is mentioned as Kalka, Churna, Swarasa, Taila and Arka. In comparison to all Kalpana, Arka Kalpana has been mentioned as the most potent² Kalpana because it is colourless, effective in low dosage, its palatability, easy intake especially in pediatrics, easy to formulate, and its stability³.

Krishna Jiraka Arka is one of them which act as Samgrahi and having Grabhashya shodhaka, Chakshushya, Gulmahara, Atisarahara properties⁴.

Material & Methods-

The objective of study was to carry out pharmaceutical study and formulate an SOP (Standard Operative Procedure) for preparing Krishna Jiraka Arka.

Requirements- Raw Krishna Jiraka, Grinder machine, glass volumetric beaker, funnel, sieve no. 10, distillation apparatus, collecting beaker, packing bottle.

Methodology-

Krishna Jiraka Arka was prepared by two methods in various batches as follows.

Method A- Volume of Drug: Volume of Water used (Prepared three batches)

Method B- Weight of Drug: Volume of Water used (Prepared one batch)

1. Method A-

- Krishna Jiraka was taken in a mixer grinder machine to make coarse powder and filtered through sieve no 10.
- 50 gram of coarse powder of Krishna Jiraka was taken and put into a 200 ml volumetric glass beaker to measure the volume of material and reading was 100 ml.
- As per classical reference two times of RO water was taken ie. 200 ml for the preparation.
- After that Krishna Jiraka was placed in distillation still with the help of plastic Kupa (Funnel).
- 100 ml of RO water was taken and added into distillation still for soaking.
- Next day remaining 100 ml of RO water was added in distillation still and with the help of distillation apparatus formation of Krishna Jiraka Arka was initiated.
- Initially the temperature knob of the heating mantle was settled at 60 °C up to boiling of solution in distillation still and later it was settled at 30 °C till end of the process.
- The process was completed up to disappearance of water from distillation still.
- Three batches were prepared with this method.

2. Method B-

- Krishna Jiraka was taken in a mixer grinder machine to make coarse powder and filtered through sieve no 10.
- 50 gram of coarse powder of Krishna Jiraka was taken and put into distillation still with the help of plastic Kupa (Funnel).
- As per classical reference two times of RO water is taken ie. 100 ml for the preparation.
- Out of that (50 ml) is taken and added into distillation still for soaking Krishna Jiraka coarse powder.
- Next day the remaining 50 ml of RO water was added in distillation still and with the help of distillation apparatus preparation of Krishna Jiraka Arka was initiated.
- Temperature knob of the heating mantle was settled 30 °C throughout the process.
- Only one batch was prepared with this method.

Observations while preparing Krishna Jiraka Arka-

1. Method A- (Done in three batches)

- While preparing coarse powder a strong pungent smell was noticed.
- After soaking, the next morning the drug material got swollen.
- Once the distillation process started the steam appeared at the neck in four to five minutes.
- Boiling started within nine to ten minutes and the first drop of Arka came out.

- During the process a peculiar pungent smell was observed in all three batches.
- Averages of 18 drops were coming per minute during the procedure.
- The total duration of distillation took an average of two hours and sixteen minutes
- Initially the Arka was milky in colour, after the next morning it became a clear watery appearance with a yellowish oily ring on the surface of the Arka.

2. Method B-

- While preparing coarse powder the same strong pungent smell was noticed as in method A.
- During the soaking of Krishna Jiraka, all the water was absorbed due to the less amount of water.
- After soaking, the next morning the drug material was not swollen.
- Once the distillation process started the steam appeared at the neck in six minutes.
- No boiling was seen because no solution was present in distillation still.
- First drop of Arka came out in seventeen minute.
- Strong pungent smell was observed during the process.
- After collection of 50 ml of Arka a burning smell was observed and then the distillation process was stopped.
- After cooling of the distillation apparatus, the distillation still got charred.
- Total duration for distillation took one hour and one minute.
- Oil droplets were appearing on the surface of Arka with slight yellow appearance
- After cooling the distillation still was washed with the help of water, but some part of the material stuck around the wall of glass distillation still. It was charred.
- The next morning the milky color disappeared and a watery color with a yellowish oily layer remained.
- The yellow color was more intense than in method A.

Table 1- Observation during Preparation of Krishna Jiraka Arka in Method A (Volume: Volume)-

S. No.	Features	Batch 1	Batch 2	Batch 3
1	Total drug weight	50 gm	50 gm	50 gm
2	Volume of Drug	100 ml	100 ml	100 ml
3	Total quantity of water required (Vol : Vol)	200 ml	200 ml	200 ml

5	Drug water ratio Taken in Actually	V:V = 1:2	V:V = 1:2	V:V = 1:2
6	Drug water ratio Became	Wt : V = 1:4	Wt : V = 1:4	Wt : V = 1:4
7	Water used for soaking	1/2 nd part (100 ml)	1/2 nd part (100 ml)	1/2 nd part (100 ml)
8	Water added at the time of distillation	1/2 nd part (100 ml)	1/2 nd part (100 ml)	1/2 nd part (100 ml)
9	Soaking time	16 hours (5 pm to 9 am)	16 hours (5 pm to 9 am)	16 hours (5 pm to 9 am)
10	Time-steam appeared at neck of flask	05 min	04 min	05 min
11	Time for boiling	09 min	10 min	9 min
12	Time of first drop	10 min	11 min	10 min
13	Heat given	Up to boiling = 60 °C After 1 st drop = 30 °C	Up to boiling = 60 °C After 1 st drop = 30 °C	Up to boiling = 60 °C After 1 st drop = 30 °C
14	Total yield	125 ml	135 ml	125 ml
15	Yield in percentage	62.5 %	67.5 %	62.5 %
16	Duration of heat	10:09 am - 12:17 pm (2 hour 8 minutes)	9:42 am- 12:08 pm (2 hour 26 minutes)	9:26 am- 11:42 pm (2 hour 16 minutes)
17	Total duration for preparation	1Day	1Day	1Day
18	Drop coming in One minute	17 drops	19 Drops	18 Drops

Table 2 - Observations during Preparation of Krishna Jiraka Arka in Method B (Weight: Volume)-

S. No.	Features	Batch 1
1	Total drug weight	50 gm
2	Total quantity of water required (Wt : Vol)	100 ml
3	Drug water ratio	Wt.:V = 1:2
5	Water used for soaking	1/2 nd part (50 ml)
6	Water added at the time of distillation	1/2 nd part (50 ml)
7	Soaking time	16 hours (5 pm to 9 am)
8	Time-steam appeared at neck of flask	06 min
9	Time for boiling	Water was not so no boiling
10	Time of first drop	17 min
11	Heat given	30 °C
12	Total yield	50 ml
13	Yield in percentage	50%
14	Duration of heat	9:56 am - 10:57 pm (1 hour 1 minutes)
15	Total duration for preparation	1Day
16	Drop coming in One minute	14 drops

Discussion-

Arka is an Ayurvedic formulation which is not only cost effective but also a therapeutic effective, easily palatable, easy to formulate. Arka is a water based extract formulation. Krishna Jiraka is an easily available and cost effective medicine.

Krishna Jiraka Arka was prepared by two methods by taking the drug water ratio as 1:2 mentioned in literature. The drug water ratio in method A was 1:2 (volume: volume) and in method B was 1:2 (weight: volume) respectively.

On average, steam accumulated at the neck of the distillation flask in 5 minutes in Method A and 6 minutes in method B respectively. Once distillation started, time taken for boiling of liquid in method A was 9-10 minutes but in Method B no boiling was observed because water was not sufficient. The first drop of Krishna Jiraka Arka was seen in 10 to 11 minutes in Method A while in method B it took 17 minutes. Yield of Arka was observed 62.5 % in method A and 50 % in method B. Averagely 17-19 drops coming out in one minute in method A and 14 drops coming out in one minute in method B.

Practically it was observed that the quantity of water is not sufficient to boil or wet the dry raw drug taken by weight. If the same solid dry drug is taken by volume it can boil/wet very well in the same quantity of water.

In method B volatile oil in Krishna Jiraka Arka was observed more compared to method A.

Conclusion-

Preparing Arka Kalpana is not only a simple and easy technique but also therapeutically very effective. Here two types of methods were selected for preparing Krishna Jiraka Arka. As per results and observations Method A (Volume: Volume) is needed to be adopted for preparing this Arka because yield is more and no chance of getting charred as compared to Method B (Weight: Volume).

References -

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Plate- 1

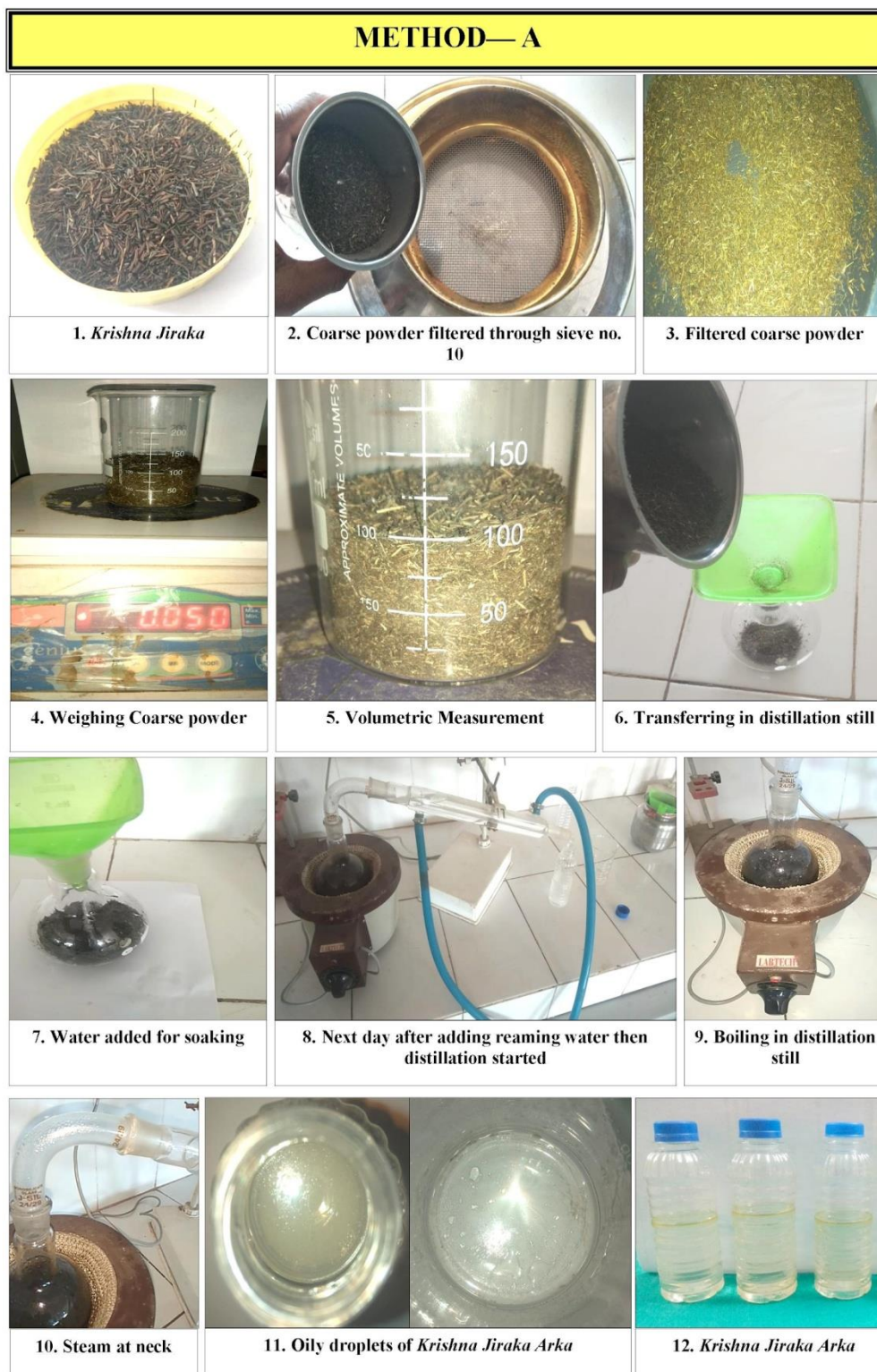


Plate 2

