INTRODUCTION
Lac is hardened secretion of natural resin by lac insect which thrives on tender shoots of host trees like *kusum* (*Schleichera oleosa*), *palas* (*Butea monosperma*) and *her* (*Zizyphus mauritiana*). It is collected either week before larval emergence known as *ari* or after larval emergence when it is known as *phunki*. Lac encrustations scraped and gathered is known as sticklac and in this form cultivator sale either to manufacturer or to their agents. Processing of sticklac means sticklac is converted to commercial grades of seedlac and shelllac. The best lac is said to be obtained from twigs of the *kusum* tree (Mandal and Sarkhel, 2014). Fresh sticklac (particularly *ari*) if kept in a heap or bags is liable to coalesce into big lumps hence it is spread on earthen floor and raked from time to time till dry. Loss due to dry may be as much as high up to 30% in case of *ari* and 5 to 10% for *phunki* (Yadav and Giri, 2015).

The basic raw material for lac industry is sticklac, which apart from lac resin, contains water-soluble lac dye (laccic acid), wax and some impurities like insect debris, sand and woody material. Removing lac dye and impurities as far as possible by crushing, sieving, winnowing, washing and drying yields the semi-refined product known as seedlac used for manufacture of shellac and other value added products. All lac produced in the country is moved through the lac processing units. Lac processors use the current harvested lac produced in the country is moved through the lac processing centers (Pal, 2014).

Sticklac reaching to processing unit varied in terms of wooden material, impurity and to some aspect quality also which results in different yield when converted into seedlac. The price of raw material is determined through very old *chouri-parata* method of seedlac yield determination practiced in lac industries. Although not accurate but still it gives fair estimation of seedlac yield practiced in lac industries. For this method of estimating seedlac yield determination practiced in lac industries. Although not accurate but still it gives fair estimation of seedlac yield for whole lot of raw material. It is in fact said to be estimation of resin content in raw material as in this a small sample is converted in to golden seedlac with impurity content maximum up to 2% and price is paid based on rate of seedlac prevailing in the market. Buyer/processor’s concern is to estimate pure resin which will be produced in form of shellac through heat process. At some place *chouri-parata* with 5% impurity content is also done. This method of yield determination is agreeable to both supplier and purchaser. Quite often the buyer manipulate to strike and *chouri-parata* rate generally in their favour so, lack of scientific method to determine the *‘chouri-parata’* rate for sticklac is of great concern. Although this is the only method practiced in lac industries for yield estimation, detailed document/paper on this process is unavailable. The paper discusses the old *chouri parata* method of estimating seedlac yield practiced in lac industries, yield from different types of seedlac, it’s advantages, limitations and requirement for improvement.

MATERIALS AND METHODS
The present study has been carried out on this old and important *chouri-parata* method of estimating/determining seedlac yield practiced in lac industries. For this information on *chouri-parata* method was collected from different lac processing centres/industries situated in Bundu and Khunti district of Jharkhand which are important lac processing centers in leading lac producer state Jharkhand of country.

REFERENCES

Yadav and Giri, 2015

Pal, 2014

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Chouri-parata Method of estimating Seedlac Yield

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RESULTS AND DISCUSSION
Arrival of Raw Material
The raw material i.e. sticklac reaches to processing units in crop season wise namely aghani and jethwi for kusmi crop and baisakhi and katki for rangeeni crop. The raw material of new/fresh crop generally arrives to processing units at an interval of approximately 3-4 months where it is first converted into semi-refined product seedlac (chouri) through primary processing of sticklac. The aghani crop of kusmi strain generally arrives in month November- January and in this period it is called as kachcha lac due to more moisture in it. Arrival of this season crop after January is termed as pucca lac. Similarly, baisakhi crop of rangeeni strain arrives in month April-May and in this period it is called as kachcha lac and after May it is called as pucca lac. The jethwi crop of this strain arrives in month June-July and in this period it is called as kachcha lac. Arrival of this season crop after July is termed as pucca lac and after July arrival may be in both jethwi and aghani (of previous season) as pucca lac. Similarly, baisakhi crop of rangeeni arrives in month April-May and in this period it is called as kachcha lac and after May it is called as pucca lac. The processor has to take care of losses associated with stick lac (kachcha lac) in making seedlac when raw material is stored for processing later otherwise he has to suffer loss due to lower yield of seedlac when raw material is procured in form of kachcha lac.

Yield of Seedlac (Chouri) from Sticklac
In lac processing units it was found that yield of seedlac in pucca lac is more compared to kachcha lac of same lot when processed for seedlac making through primary processing. This is mainly due fact that kachcha lac is not sufficiently dried and has higher moisture content compared to pucca lac. The approximate yield of golden seedlac for these two conditions of lac is presented below (Table 1).

<table>
<thead>
<tr>
<th>Type of crop</th>
<th>Condition of crop</th>
<th>Yield of golden seedlac</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kusmi</td>
<td>Kachha lac</td>
<td>50 - 60%</td>
</tr>
<tr>
<td></td>
<td>Pucca lac</td>
<td>60 - 75%</td>
</tr>
<tr>
<td>Rangeeni</td>
<td>Kachha lac</td>
<td>35 - 45%</td>
</tr>
<tr>
<td></td>
<td>Pucca lac</td>
<td>45 - 55%</td>
</tr>
</tbody>
</table>

Method of Seedlac Yield Determination from Sticklac in Chouri-Parta
In this method of determining seedlac yield, a small sample of sticklac is converted into in to golden seedlac through golden washing by manual method. The process of converting sample of sticklac to golden seedlac involves four operations namely sampling, crushing, washing and drying. Three samples of sticklac are prepared out of which one is converted into golden seedlac and rest two are for buyer and seller for dispute if any. In earlier days, preparation of seedlac from collected samples of stick lac is done manually by a person who has expertise in it and agreeable to both parties. Such person are known in lac industry for determining chouri-parta. Now a days in some lac industry chouri-parta is determined by personal of processing industry and is agreed by supplier of raw material. The details of the whole process practiced in lac industry are discussed below.

Method of sampling
The raw material i.e., sticklac transported and arrived in jute/gunny bags 40-45 kg is spread on floor by alternatively opening and dropping each bag material successively. It is then spread in circular area of maximum 6” height. A sample picker (Fig.1) in form of circular hollow iron cylinder (dia-6”, height-1 ft approx.) is placed in circular spread area by pressing the sample picker vertically downward for collecting samples from different places (Fig.2) which may amount to 1.5 to 2 kg in each pick up. By this process samples from different places in circular spread area are collected. The exact numbers of samples drawn from different places depend on quantity of raw material (Table 2).

<table>
<thead>
<tr>
<th>Lot size of sticklac</th>
<th>Number of sample needed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to 0.5 Ton</td>
<td>4 - 5 samples</td>
</tr>
<tr>
<td>0.5 to 1 Ton</td>
<td>6 - 7 samples</td>
</tr>
<tr>
<td>Above 1 Ton</td>
<td>8 - 9 samples</td>
</tr>
</tbody>
</table>

Fig. 1: Sample picker

Fig.2: Collection of samples through Sample picker
Samples thus collected are mixed ([Fig.3]) on cemented floor and spread in circular shape of 3" height approx and divided in four equal parts. Out of four only two opposite parts are taken for further sampling. Remaining two opposite parts are discarded ([Fig.4]).

The two opposite parts thus collected on floor is spread in ring shape of 2ft diameter (approx.). Material is collected in centre ([Fig.5]) by person using hand finger by removing from 03 places of ring approximately 120° apart or 04 places approximately 90° apart from ring of material made. Nearly 400-500 gm material is approximately collected in the centre for making final sample ([Fig.6]). Similar method is again repeated for collecting another sample from the ring. A total of 03 samples are thus collected, one for chaori parata determination and one each for buyer and seller for solving dispute if any arrived after that ([Fig.7]).

Crushing
One sample of 400-500 gm size is weighted and it is screened through 40 mesh screen to remove sand and dust. It is then crushed using stone (loda) ([Fig.8]) and after each pass of
Chouri-parta method of estimating seedlac yield

Washing
The 8-40 mesh size crushed sample prepared above is washed manually for preparing golden seedlac (impurity-2% maximum) through golden washing by rubbing wet lac grains by hand on special horizontal stone made for this purpose. Sticklac grain is washed two times with water by rubbing on stone by hand to get colour lighter without addition of soda (Fig. 12). The impurity content at this stage may be approximately 3%. Now soda is added in quantity 0.4-0.5% by wt. of sticklac and rubbed and washed with water to get golden colour seedlac. A mark in cloth is used to separate washed seedlac and dye enriched wash water in each successive washing (Fig. 13).

Drying and weight measurement
The golden washed sample of seedlac (Fig. 14) thus prepared is dried properly in ambient air (Fig. 15) and weight is measured. The % yield is calculated based on weight of original sample taken for crushing. On the basis of yield of golden seedlac obtained, the price of raw material may be finalized based on price of golden seedlac prevailing in market. So this price of sticklac depends on impurity present in raw material.

Advantage And Limitation Of Chouri-parta Method
This method of estimating seedlac yield is simple, very old and practiced in lac industries since long time. Although it gives fair estimation of seedlac yield from sticklac but not as accurate as modern methods.
FIGURES

Fig. 14: Washed grain of seedlac. Precisely dealing with resin content in raw material which can be estimated in a lab through lab/chemical process. Apart from this since this is a manual process so the result may vary from person to person who is determining chouri-parta. Nowadays there is also shortage in such type of neutral person in this type of industry who earlier used to work for such activity and acceptable to both buyer and seller and chouri-parta in that places is now determined by processor itself on which supplier has to rely and trust on them. In most of places although chouri-parta is determined based on golden seedlac but fact is that for actual processing in most lac processing units, raw material is mostly converted into normal grade with impurity content varying from 3 to 5% suitable for further most of application like making of lac based products shellac, bleached lac etc.

Fig. 15: Drying of washed sample in ambient air.

CONCLUSION
Chouri-parta method is old practiced method of seedlac yield determination in lac industry for determining raw material price. Although it gives agreeable estimation of seedlac yield, it needs improvement in method and mechanization is needed in terms of small machine/unit for better uniformity of reproducibility of yield results when repeated for subsequent lot and benefit of producer/supplier for getting better value of their produce.

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REFERENCES

Citation: