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A cheap process of preparing charcoal for activated carbon

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In the manufacture of activated carbon from paddy husk, as carried on at present, the ignition of the first char at high temperature is done in thick iron tubes about 4 ft. in length and 8 in. in diameter. These tubes, to make them fairly airtight, have to be provided with lids hinged to both ends. Such iron pipes at the present market rate will cost anything from Rs. 30 to Rs. 40 each and even at that high cost are not easily obtainable. As these iron pipes have to be subjected to very high temperature, each time a charge of carbon is ignited they get fire-eaten after 50 to 60 charges and have therefore to be discarded, and new ones substituted. And for the ignition of carbon in such tubes under high temperature it is also necessary to build elaborate and costly furnaces with brick in-mud with the provision of iron gratings, ash pit, etc. To build a furnace of the kind designed by the Government Agricultural Chemist to take in three iron tubes of the dimensions mentioned above, it costs roughly Rs. 130. Because of such high cost and intricacy of building such furnaces, it is not possible for the majority of cane growers to prepare their own carbon to clarify their cane juice.

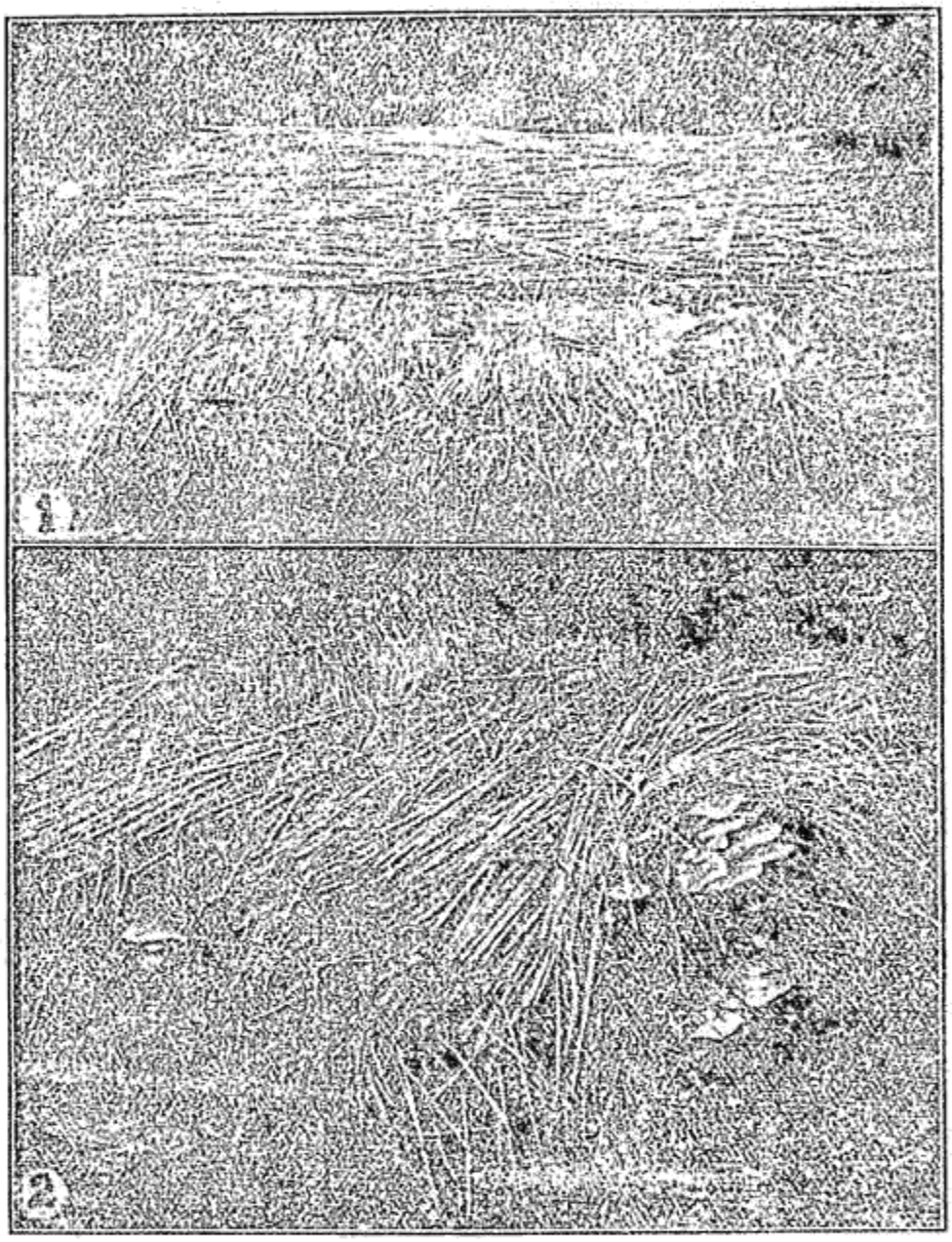
The new simplified method. With a view to simplify and cheapen the process of carbon making and to eliminate iron tubes and elaborate

furnaces altogether, the authors tried to find out whether it will not be possible to carry out the ignition of the first char in narrow mouthed earthern pots commonly made and sold by the village potter at an anna each. In the trial conducted a well-burnt earthern pot of about 4 gal. capacity and with a narrow mouth 4 in in diameter was used. The first char was prepared by the usual process of burning the paddy husk in the open. This first char after cooling was filled in the mud pot and the pot was kept in a shallow pit of about 4 in. in depth. It was then covered with well-dried cow-dung cakes and ignited. Within a few minutes the pot became red hot and the carbon inside began to glow. The ignition was kept up and continued for about 45 minutes before emptying the contents on to a clean floor or cooling. The weight of ignited carbon obtained from each charge was roughly 10 lb. The weight of cow-dung cakes used for each charge was also 10 lb, costing nine pies. The mud pot stood high temperature remarkably well, indeed. There was not the slightest damage to it and it looked that it could be used for igniting several charges of carbon. Even if the pot were to get broken in handling, the replacement charges are so low as to be negligible Assuming that a pot could be used for igniting a dozen charges and the fuel for each charge of 10 lb of carbon costs 9 ps, the cost of production of a pound of ignited carbon will work out at a pie a pound. Though cow-dung cakes were used in this experiment as fuel, it does not mean that other kinds of fuel like charcoal and even ordinary firewood could not be used for ignition. It might even be possible to surround the pot with a thick layer of pre-heated paddy husk for igniting the first char. In that case it may be possible to utilise the heat produced in the manufacture of the first char from the paddy husk itself for the ignition of the carbon in the mud pot. In that case the cost of cow-dung cake or other kinds of fuel could also be eliminated.

A sample of carbon prepared by the new method was sent to the Government Agricultural Chemist for treating with caustic soda for activating it, and for his opinion. His opinion was as follows: "The sample of paddy husk charcoal received from you with the letter read above was activated and found to be suitable for the manufacture of activated carbon. The resulting carbon clarifies sugar juices well."

The results of this trial indicate the possibility of preparing active carbon without the use of costly iron pipes and elaborate furnaces. For large scale manufacture of carbon, one will have to use bigger sized pots and a battery of them, according to the demand for carbon. If costly caustic soda could also be replaced by cheaper alkalies for treating the carbon, the use of activated carbon as a clarifying agent is sure to become very popular, not only in the manufacture of cream jaggery and sugar, but also in clarifying vegetable oils, etc.

Paddy Straw Mushroom.



1. Spawning the bed.
2. Mushrooms appearing after 15 days.