



ISSN (E): 2277- 7695
ISSN (P): 2349-8242
NAAS Rating: 5.23
TPI 2021; SP-10(7): 580-584
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www.thepharmajournal.com

Received: 22-05-2021
Accepted: 24-06-2021

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Sensory evaluation of sweet potato and elephant foot yam on nature of milk cake

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Abstract

In the new millennium an upward trend in nutritional and health awareness is being witnessed which has increased the consumer demand for functional foods. The present investigation was made with an attempt to develop sweet potato and elephant foot yam on quality of milk cake by partial addition of different levels of sweet potato and elephant foot yam, and thereafter evaluate the effect of addition of sweet potato and elephant foot yam milk cake on nutritional quality. For control, milk cake was standardized to 16.6% milk fat & 17% sugar to obtain 82.60% total solid & treatment (S1E1) was standardized to 15.10% fat, 17% sugar and 5% sweet potato pulp and 5% elephant foot yam pulp, (S1E2) was standardized to 14.5% fat, 17% sugar and 5% sweet potato pulp and 10% elephant foot yam pulp, (S1E3) was standardized to 13.90% fat, 17% sugar and 5% sweet potato pulp and 15% elephant foot yam pulp, (S1E4) was standardized to 13.30% fat, 17% sugar and 5% sweet potato pulp and 20% elephant foot yam pulp, (S2E1) was standardized to 13.10% fat, 17% sugar and 10% sweet potato pulp and 5% elephant foot yam pulp, (S2E2) was standardized to 12.80% fat, 17% sugar and 10% sweet potato pulp and 10% elephant foot yam pulp, (S2E3) was standardized to 12.62% fat, 17% sugar and 10% sweet potato pulp and 15% elephant foot yam pulp, (S2E4) was standardized to 12.51% fat, 17% sugar and 10% sweet potato pulp and 20% elephant foot yam pulp, (S3E1) was standardized to 12.40% fat, 17% sugar and 15% sweet potato pulp and 5% elephant foot yam pulp, (S3E2) was standardized to 12.21% fat, 17% sugar and 15% sweet potato pulp and 10% elephant foot yam pulp, (S3E3) was standardized to 12.18% fat, 17% sugar and 15% sweet potato pulp and 15% elephant foot yam pulp, (S3E4) was standardized to 12.14% fat, 17% sugar and 15% sweet potato pulp and 20% elephant foot yam pulp, (S4E1) was standardized to 12.12% fat, 17% sugar and 20% sweet potato pulp and 5% elephant foot yam pulp, (S4E2) was standardized to 12% fat, 17% sugar and 20% sweet potato pulp and 10% elephant foot yam pulp, (S4E3) was standardized to 11.80% fat, 17% sugar and 20% sweet potato pulp and 15% elephant foot yam pulp, (S4E4) was standardized to 11.66% fat, 17% sugar and 20% sweet potato pulp and 20% elephant foot yam pulp. In the Milk cake samples of different treatments and control, organoleptic characteristic like (flavour and taste, body and texture, colour and appearance, melting resistance and overall acceptability) was evaluated by trained panellist using 9 point hedonic scale. The highest value was observed in treatment (S2E2) containing sugar and 10% sweet potato pulp and 10% elephant foot yam pulp. In microbiological analysis the best treatment (S2E2) was selected SPC, Yeast & Mould and coli form test.

Keywords: sweet potato and elephant foot yam, Buffalo milk, sensory evaluation

Introduction

Rabri, Khurchan, Khoa, and Milk Cake are examples of Northern India's indigenous concentrated milk products. Gulabjamun, Ladoo, Burfi, and other milk-based sweets, as well as Bengali sweets like rasgoolla and Sandesh, are popular throughout India. Milk cake is a popular milk-based product in Northern India. It's made with Danedar Khoa and sugar, but a portion of the mass is caramelized more deeply and then layered between the less caramelized portions. The commodity is important from both a nutritional and a financial perspective. The product is characterized by well-defined grains and a stronger caramel flavor.

Elephant foot yam helps to achieve the researchers endeavor to explore the biochemical significance of the crop which is inexpensive. Any substance that may be considered a food or a part of a food that provides medicinal and nutritional benefits including prevention and treatment of diseases can be termed as a nutraceutical. Elephant Foot yam. has proven to possess immensely high amount of nutritional benefits as well as therapeutic properties. Elephant Foot Yam also called Indian Yam is an aroid plant which is making its way towards nutraceuticals. Being a rich source of dietary fiber and having low glycemic index makes it a

rich food for treatment of heart ailments as well as diabetes. It is also shown to have high amount of omega fatty acids which regulates the good cholesterol level in the body. It is low in fat and is only shown to have the essential fatty acids thus helps in reducing the risks of obesity and diseases associated with it.

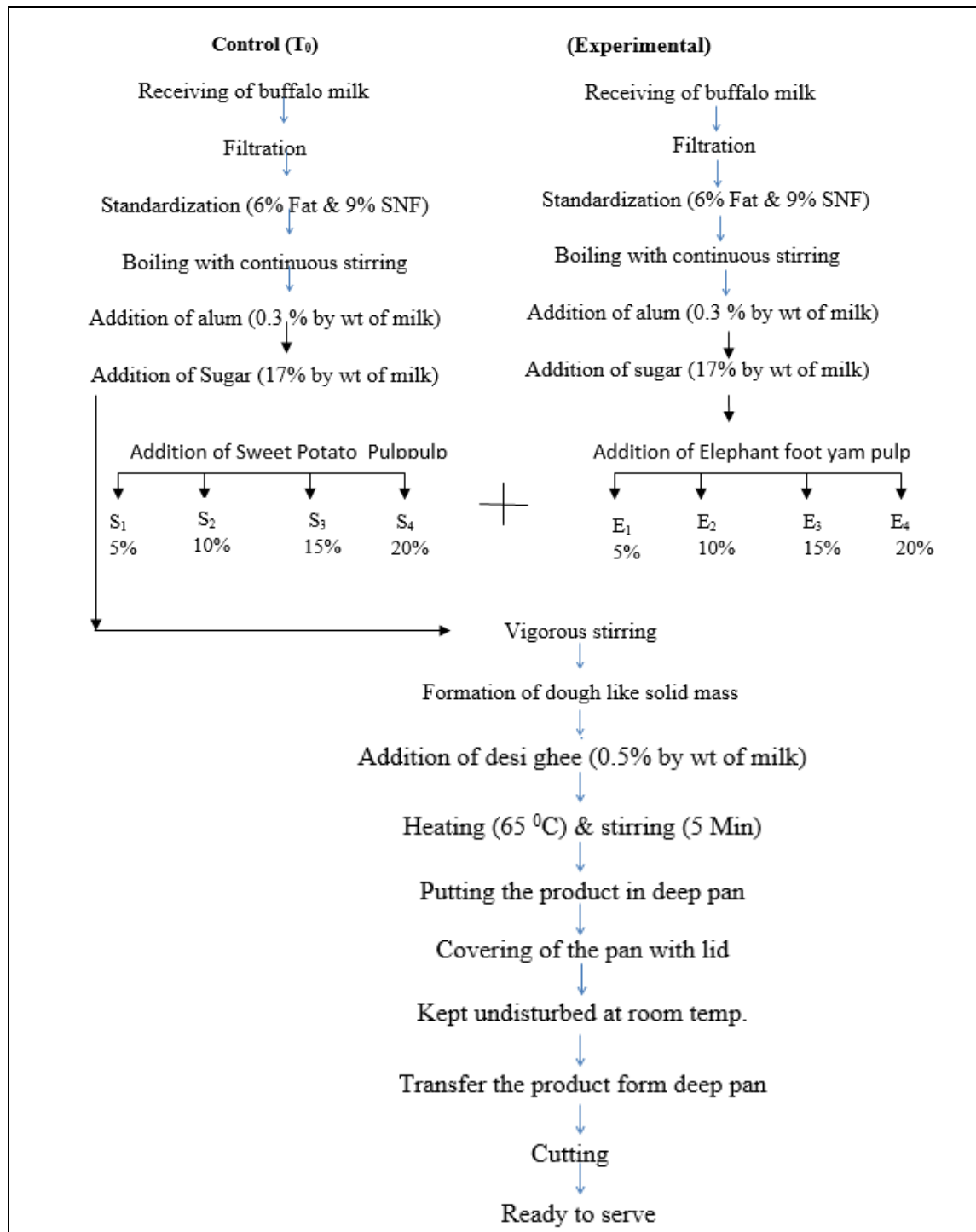
Sweet potato [*Ipomoea batatas* (L.) Lam] is the world's sixth most valuable food crop, and new uses have been discovered for it. Sweet potato is one of the crops chosen by the National Aeronautics and Space Administration (NASA) to be cultivated as a primary food source in a managed ecological life support system. According to recent study, sweet potatoes contain functional components such as polyphenols, anthocyanins, and dietary fiber.

Materials and Methods

The experiment "Sensory attributes for preparation of Sweet potato (*Ipomoea batatas*) and Elephant foot yam (*Amorphophellus paeoniifolus*) on quality of Milk cake" was carried out in Dairy Technology research lab, Warner College of Dairy Technology, Sam Higginbottom University of Agriculture Technology and Sciences, Prayagraj -211007, U.P. (India).

Procurement of ingredients

Milk, Sugar, Elephant Foot Yam, Sweet Potato, Ghee was collected from local market of Prayagraj (Allahabad).



S = Sweet potato, E = Elephant foot yam.

Fig 1: Flow diagram for manufacturing of sweet potato and elephant foot yam milk cake

Organoleptic quality

Sensory characteristics was using by 9 point hedonic scale by trained panelist.

Statistical Analysis

The data was analyzed statistically by WASP software and Analysis of variance at 5% level of significance.

Number of treatments - 17
 Number of replications - 05
 Total number of samples - 85

Results and Discussion

The current investigation was completed for Effect of various degrees of Sweet Potato (*Ipomoea batatus*) and Elephant Foot Yam (*Amorphophellus paeoniifalvus*) on nature of milk cake. Milk cake is a warmth devoted conventional item. This is

broadly devoured in India during the entire year. Milk cake contains high measure of sugar which limits the calorie cognizant individuals just as diabetic individual from burning-through this item. Joining of Elephant Foot Yam and Sweet Potato is respectfully suing to build the adequacy of yam (*Ipomoea batatus*) and elephant foot sweet potato (*Amorphophellus paeoniifalvus*) on nature of milk cake as Elephant Foot Yam and Sweet Potato is known to have an enemy of diabetic impact.

The current examination was done to see the chance of fusing Sweet Potato and Elephant Foot Yam in Milk cake with the goal that it doesn't influence the tactile boundaries of the Milk Cake. The outcomes got from the investigation are introduced in this section under the accompanying; Headings

- Organoleptic attributes of various degrees of Sweet Potato and Elephant Foot Yam on nature of milk cake.

Organoleptic attributes of various degrees of Sweet Potato and Elephant Foot Yam on nature of milk cake.

Microbial analysis of Milk Cake																	
SPC ($\times 10^3$ cfu/g)	14.4	13.2	15.6	13.4	15.0	12.8	12.0	14.4	14.8	14.8	13.8	15.4	13.2	13.0	12.6	15.0	13
Coliform count (/g)	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
Yeast & Mould (/g)	5.2	5.0	5.4	5.8	5.6	5.4	5.8	6.0	5.6	4.8	5.2	4.8	6.2	5.4	5.8	5.0	5.4
Organoleptic characteristics of Milk Cake																	
Color& appearance	8.04	8.13	8.23	8.12	8.07	8.11	8.34	8.16	8.04	8.13	8.02	8.14	7.58	7.78	7.76	7.54	7.2
Body & texture	8.20	8.23	8.11	8.30	8.13	8.21	8.53	8.02	8.22	8.29	8.03	7.99	7.66	7.96	7.63	7.48	7.5
Flavor& Taste	8.23	8.12	8.21	8.32	8.22	8.17	8.48	8.25	8.16	8.15	8.27	8.22	8.14	8.02	7.98	7.77	7.3
Overall acceptability	8.26	8.22	8.29	8.33	8.24	8.27	8.56	8.25	8.23	8.18	8.11	8.22	7.91	7.58	7.72	7.81	7.5

Colour and appearance

Perusal of data on colour and appearance in sweet potato & elephant foot yam milk cake sample of different treatment furnished in figure 2, it was noted that highest mean for colour and appearance was recorded in sweet potato & elephant foot yam milk cake sample of (8.34) was recorded in S2E2 and followed by S1E1 (8.13), S1E2 (8.23), S1E3 (8.12), S1E4 (8.07), S2E1 (8.11), S2E2 (8.34), S2E3 (8.16), S2E4

(8.04), S3E1 (8.13), S3E2 (8.02), S3E3 (8.14), S3E4 (7.58), S4E1 (7.78), S4E2 (7.76), S4E3 (7.54), S4E4 (7.23). Color and appearance varied greatly in the majority of the treatment combinations. The difference in these values, on the other hand, was found to be important, suggesting that they had a significant impact on treatment in terms of colour and appearance between samples of different. Treatments.

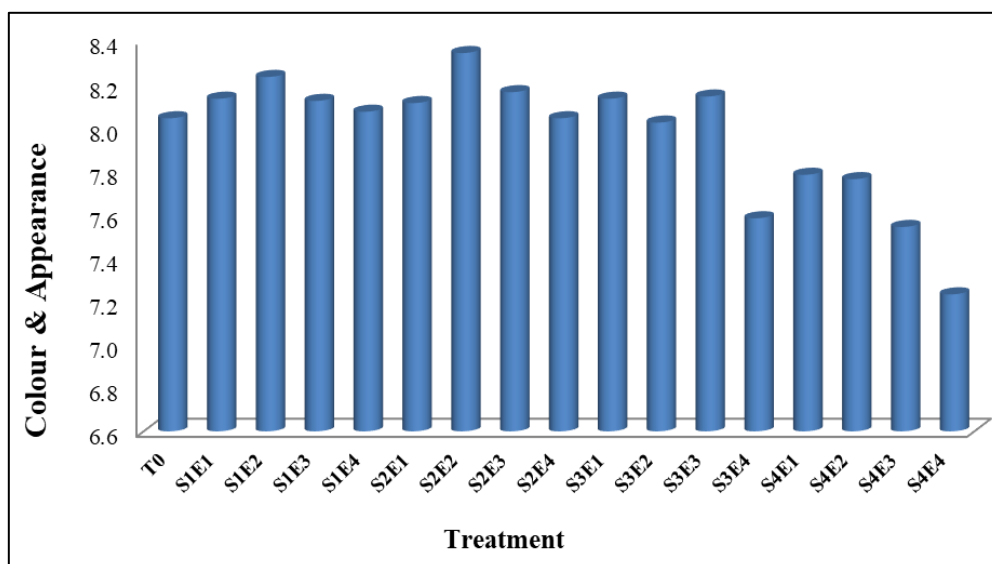


Fig 2: Average of colour and appearance in Sweet Potato and Elephant Foot Yam Milk Cake sample.

Body and Texture

Perusal of data on body and texture in sweet potato & elephant foot yam milk cake sample of different treatment furnished in figure 3, it was noted that highest mean for body and texture was recorded in sweet potato & elephant foot yam milk cake sample of (8.53) was recorded in S2E2 and

followed by S1E1 (8.23), S1E2 (8.11), S1E3(8.30), S1E4 (8.13), S2E1 (8.21), S2E2 (8.53), S2E3(8.02), S2E4 (8.22), S3E1 (8.29), S3E2 (8.03), S3E3 (7.99), S3E4 (7.76), S4E1 (7.96), S4E2 (7.63), S4E3 (7.48), S4E4 (7.57). Body and texture varied greatly in the majority of the treatment combinations. The difference in these values, however, was

found to be important, suggesting that they had a significant impact on body treatment and texture between samples of

different treatments.

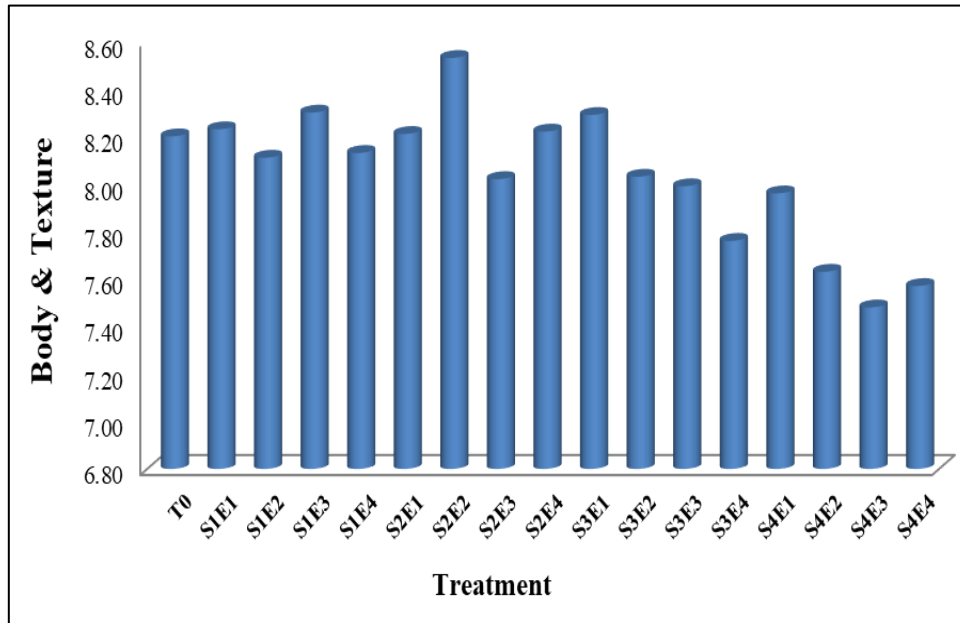


Fig 3: Average of body and texture in Sweet Potato and Elephant Foot Yam Milk Cake sample.

Flavour and Taste

Perusal of data on flavour and taste in sweet potato & elephant foot yam milk cake sample of different treatment furnished in figure 4, it was noted that highest mean for flavour and taste was recorded in sweet potato & elephant foot yam milk cakes ample of (8.48) was recorded in S2E2 and followed by S1E1 (8.12), S1E2 (8.21), S1E3 (8.32), S1E4 (8.22), S2E1 (8.17), S2E2 (8.48), S2E3 (8.25), S2E4(8.16),

S3E1 (8.15), S3E2 (8.27), S3E3 (8.22), S3E4 (8.14), S4E1 (8.02), S4E2 (7.98), S4E3 (7.77), S4E4 (7.35). Most of the medication combinations had major differences in flavor and taste. The difference in these values, on the other hand, was found to be important, suggesting that they had a significant impact on treatment in terms of flavor and taste between samples of different treatments.

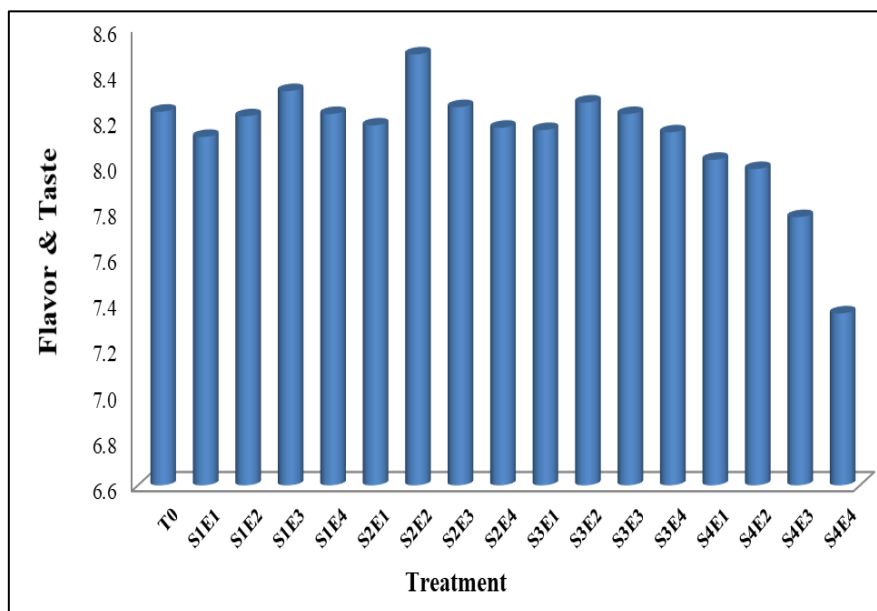


Fig 5: Average of flavour and taste in Sweet Potato and Elephant Foot Yam Milk Cake sample.

Overall acceptability

Perusal of data on overall acceptability in sweet potato & elephant foot yam milk cake sample of different treatment furnished in figure 6, it was noted that highest mean for overall acceptability was recorded in sweet potato & elephant foot yam milk cake sample of (8.56) was recorded in S2E2 and followed by S1E1 (8.22), S1E2 (8.29), S1E3 (8.33), S1E4

(8.24), S2E1 (8.27), S2E2 (8.56), S2E3 (8.25), S2E4 (8.23), S3E1 (8.18), S3E2 (8.11), S3E3 (8.22), S3E4 (7.91), S4E1 (7.58), S4E2 (7.72), S4E3 (7.81), S4E4 (7.51). Values were found to be important in the majority of treatment combinations, meaning that they had a significant impact on treatment in terms of overall acceptability between samples of different treatments.

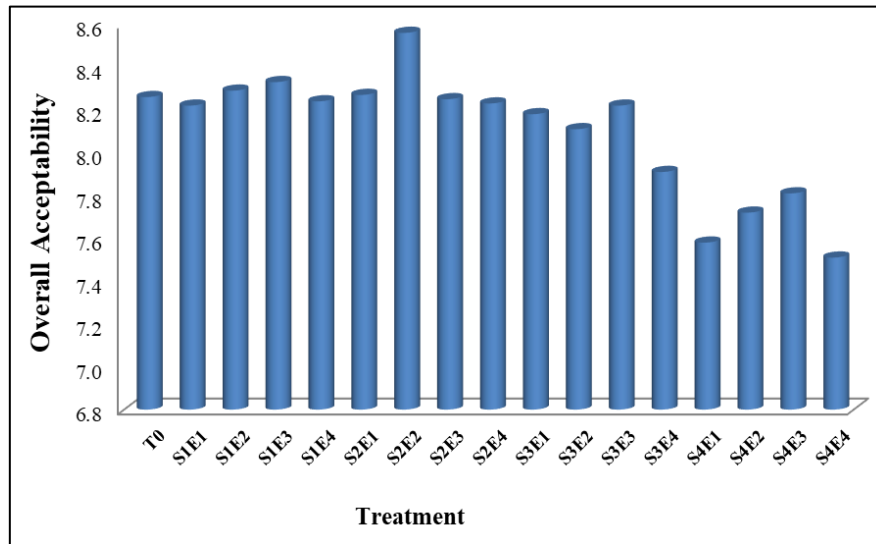


Fig 6: Average of overall acceptability in Sweet Potato and Elephant Foot Yam Milk Cake sample

Acknowledgement

The authors are thankful to the Dean, Warner College of Dairy Technology, Sam Higginbottom University of Agriculture, Technology and Sciences, Prayagraj (U.P.) for providing the facilities required for conducting the research work.

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