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Preparation and Evaluation of Novel Sample (Sodium Bicarbonate and Curcuma Longa) Screening for Body Bad Odor in Human Models



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ABSTRACT

The objective of the present study is to cover the bad odor from human body parts such as axillary (armpit) part and area of the areola, genital region, and around the navel contain springy hairs. The test sample was prepared with sodium bicarbonate and *Curcuma longa* in the ratio 5: 1. A collection of the significant time duration (free from bad odor from the human body) and significant data with Indian women was seen. Longer duration and shorter duration time at 7.00 am – 3.00 pm and 6.00 pm - 10.00 pm, Indian man was seen longer duration and shorter duration of time at 7.00 am – 4.00 pm and 7.00 am – 2.00 pm, North Sudan man was seen longer duration and shorter duration of time at 1.00 am – 8.00 pm (19 hours) and 7.00 am – 2.00 pm and Nigerian man was seen longer duration and shorter duration of time at 8.00 pm – 8.00 am and 7.00 am – 3.00 pm respectively. Based on these reasons we have made an attempt to choose the sample as an anti-odor agent.

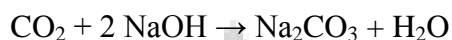
INTRODUCTION

Body Odor (BO) is present in animals and humans, and its intensity can be influenced by many factors (behavioral patterns, survival strategies)⁵. Body odor has a strong genetic basis both in animals and humans, but it can be also strongly influenced by various diseases and psychological conditions. Body odor is generally considered to be an unpleasant odor among 99% of human and animals. In humans, the formation of body odors is mainly caused by apocrine sweat glands excretions and bacterial activity⁷, which secrete the majority of chemical compounds needed for the skin flora to metabolize it into odorant substances. Mostly found in the axillary (armpit) part, the glands are also present in the area of the areola, genital region, and around the navel contain springy hairs which help diffuse body odors.^{8,9} The armpit regions in human are more important than the genital region for body odor which may be related to the human movement of the body.

The main components of human axillary odor are unsaturated or hydroxylated branched fatty acids with E-3M2H (E-3-methyl-2-hexenoic acid) and HMHA (3-hydroxy-3-methyl-hexanoic acid), sulfanyl alkanols and particularly 3M3SH (3-methyl-3-sulfanylhexan-1-ol), and the odoriferous steroids androstenone (5α -androst-16-en-3-one) and androstenol (5α -androst-16-en-3 α -ol).^{4,9} E-3M2H is bound and carried by two apocrine secretion odor-binding proteins, ASOB1 and ASOB2, to the skin surface.¹⁴

Body odor is influenced by the actions of the bacteria, including members of *Corynebacterium* species, they manufacture enzymes called lipases, which break down the lipids in sweat and create smaller molecules like butyric acid. *Staphylococcus hominis* is another bacteria produces thioalcohol compounds that contribute to odors. These molecules smell, and give body odor its characteristic smell. Some amino acids are broken down in the presence of propionibacteria which produce propanoic acid in sweat, which are developed in the ducts of adolescent and adult sebaceous glands. The propionic acid is chemically nothing but acetic acid with similar characteristics body odors which may be identified as unpleasant smell by certain people. Another bacteria *Staphylococcus epidermidis*, is responsible for the production of isovaleric acid (3-methyl butanoic acid) which is the other source of body odor. An individual's body odor is also influenced by disease lifestyle^{18,19}, sex, genetics, and medication. Female armpits are generally having thin skin and less fatty substances as compared to male. So, females are

dominated by staphylococci, while males are likely to have more corynebacteria in the armpit. This is the favorite dish for the lipophilic corynebacteria. Sodium hydrogen carbonate is chemically known as NaHCO_3 . It is a salt composed of sodium ions and bicarbonate ions. Sodium bicarbonate is a white crystalline solid powder. It has a slightly salty, alkaline taste. The natural mineral form is nahcolite. It is a component of the mineral natron and is found dissolved in many mineral springs. Since it has long been known and is widely used, the salt is also called as baking soda, bread soda, cooking soda, and bicarbonate of soda. NaHCO_3 may be obtained by the reaction of carbon dioxide with an aqueous solution of sodium hydroxide. The initial reaction produces sodium bicarbonate:

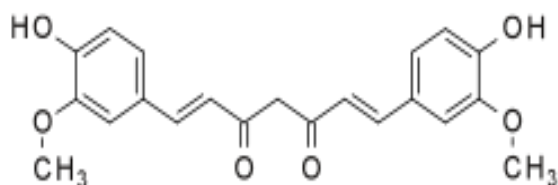


Further addition of carbon dioxide produces sodium bicarbonate, which at sufficiently high concentration will precipitate out of solution:

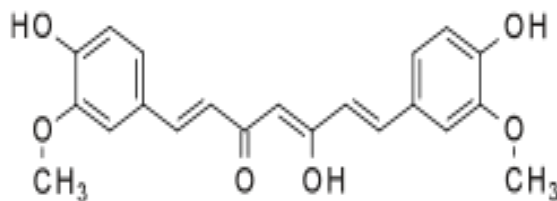


MATERIALS AND METHODS^{10, 12.}

Sodium bicarbonate (baking soda) was collected from Guru Nanak Collage laboratory, make by SD Fine. As well as a sample of (*Curcuma longa*) turmeric powder, *Curcuma longa* all readily proved number of pharmacological activity such as antiseptic, antibacterial, antifungal, anticancer, anti-cough, antidiabetic, anti-arthritic, analgesic, anti-allergic, blood purification as well as cosmetics. The turmeric powder is properly mixed with sodium bicarbonate by mixer 1:5 ratio or one gram turmeric powder mixed with five gram sodium bicarbonate. The prepared novel samples were put in a small packet. Each small packet of the sample contains two gram of sodium bicarbonate mixture.



Curcumin keto form



Curcumin enol form

Bad odor testing^{1, 2,5,7.}

Before bath take one prepared packet (two gram of sodium bicarbonate and *Curcuma longa* mixture) proper mixed with an adequate amount of rose water, then apply to the axillary (armpit) part and area of the areola, genital region, and around the navel contain springy hairs. After that, wait for 5 minutes and rinse the whole body with water. Take note of the result after bath to ensure there is no any bad odor or smell in the sweat from the body up to longer duration.

RESULTS AND DISCUSSION

Table 1: Bad Odor Testing for Prepared Novel Sample Application in Indian Women.

S.NO	NAME OF THE APPLICANT	AGE (Years)	SEX	SAMPLE APPLICATION TIME	DURATION OF FREE FROM BAD ODOR
1.	P. Navalika	22	Female	6.00 pm	6.00 pm – 10.00 pm
2.	B. Gowthami	20	Female	9.00 am	9.00 am – 3.00 pm
3.	B. Mamatha	21	Female	9.00 am	9.00 am – 3.00 pm
4.	S. Rajeshwari	21	Female	7.00 am	7.00 am – 2.00 pm
5.	N. Priyanka	22	Female	8.00 am	8.00 am – 4.00 pm
6.	D. Anitha	22	Female	8.00 am	8.00 am – 4.00 pm
7.	M. Akashini	24	Female	10.00 am	10.00 am – 3.00 pm
8.	S. Sneha	25	Female	8.30 am	8.30 am – 2.00 pm
9.	Sheela Devi	33	Female	7.30 am	7.00 am – 3.00 pm
10.	Seema Singh	36	Female	10.00 am	10.00 am – 4.00 pm

Table 2: Bad Odor Testing for Prepared Novel Sample Application in Indian Man

S.NO	NAME OF THE APPLICANT	AGE	SEX	SAMPLE APPLICATION TIME	DURATION OF FREE FROM BAD ODOR
1.	Harpreet Singh Chhabra	20	Male	1.00 pm	1.00 pm – 7.00 pm
2.	Tribhuvan Verma	35	Male	7.00 am	7.00 am – 4.00 pm
3.	Amit Verma	32	Male	7.30 am	7.30 am – 3.00 pm
4.	A. Abhinandan	22	Male	7.00 am	7.00 am – 2.00 pm
5.	Arun Reddy	21	Male	8.00 am	8.00 am – 4.00 pm
6.	M. Ibrahim	25	Male	7.00 am	7.00 am – 3.00 pm

HUMAN

Table 3: Bad Odor Testing for Prepared Novel Sample Application in Sudan man

S.NO	NAME OF THE APPLICANT	AGE (yrs)	SEX	SAMPLE APPLICATION TIME	DURATION OF FREE FROM BAD ODOR
1.	Yohanna John	20	Male	7.00 am	7.00 am – 2.00 pm
2.	John Daniel	23	Male	8.30 pm	8.30 pm – 8.30am
3.	Mena Oda	21	Male	10.00 pm	10.00 pm – 10.00 am
4.	Joseph Moga	23	Male	7.30 am	7.30 am – 3.30 pm
5.	Moses Jarun	26	Male	8.00 pm	8.00 pm -10.00 am
6.	Galal Ibrahim	24	Male	7.00 am	7.00 am - 7.00 pm
7.	Saleh Muktar	23	Male	7.00 am	7.00 am – 2.00 pm
8.	Usman Hassan	18	Male	7.30 am	7.30 am -7.30 pm
9.	Ali Dogu	22	Male	1.00 pm	1.00 pm – 1.00 am
10.	Mazim Abubakar	24	Male	1.00 pm	1.00 pm – 8.00 pm (19 hrs)
11.	Mangisto Abdallah	25	Male	7.30 am	7.30 am – 3.00 pm
12.	John Moses	18	Male	2.00 pm	2.00 pm – 10.00 pm
13.	Sherriff Hassan	27	Male	8.00 am	8.00 am - 3.00 pm
14.	Dauda Aron	18	Male	1.00 pm	1.00 pm – 10.00 am
15.	Salim Ibrahim	24	Male	8.00 am	8.00 am – 4.00 pm
16.	Musa Abdullahi	19	Male	8.00 am	8.00 am – 4.00 pm
17.	Shehu Musa	26	Male	1.00 pm	1.00 pm – 10.00 am
18.	Maina Abdullahi	24	Male	8.00 pm	8.00 pm – 8.00 am
19.	Kabir Jamil	20	Male	7.30 am	7.30 am – 3.30 pm
20.	John Michael	26	Male	8.00 pm	8.00 pm – 8.00 am

Table 4: Bad Odor Testing for Prepared Novel Sample Application in Nigerian man

S.NO	NAME OF THE APPLICANT	AGE	SEX	SAMPLE APPLICATION TIME	DURATION OF FREE FROM BAD ODOR
1.	Mala Kime	20	Male	1.00 pm	1.00 pm- 3.00 am
2.	Hamisu Kime	19	Male	1.00 pm	1.00 pm - 8.00 pm
3.	Muhammad Ibrahim	25	Male	7.00 am	7.00 am - 3.00 pm
4.	Makintami Abubakar	19	Male	8.00 pm	8.00 pm - 8.00 am
5.	Abdullahi Umar	25	Male	7.00 am	7.00 am - 3.00 pm
6.	Abubakar Muhammad	18	Male	7.00 am	7.00 am - 7.00 pm
7.	Muhammad Abba	24	Male	12.00 pm	12.00 pm - 12.00 am
8.	Muhammad Ibrahim	23	Male	12.00 pm	12.00 pm - 12.00 am
9.	Ahmad Abubakar	21	Male	7.00 am	7.00 am - 3.00 pm
10.	Chiroma Mustapha	26	Male	8.00 pm	8.00 pm - 8.00 am

CONCLUSION

In the present study prevent bad odor by using novel prepared a sample (sodium bicarbonate proper mixed with *Curcuma longa* along with adequate amount of rose water) was found to sample as anti bad odor agent, have an excellent novel sample.

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