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Comprehensive Analysis of Allerkhand Tablet: A Novel Ayurvedic Herbal Formulation helps to regulates the Allergic Conditions

Bijeshmon PP[1], Sibi Narayanan[2], Anusree NM[3], Meera Mohan K[4], Greeshma KM[5], Veena K[6], Jewel Varghese[7]

[1]*Manager, Quality Control Laboratory, Sitaram Ayurveda Pvt. Ltd., Kerala, India.*

[2]*Manager, Research & Development Department, Sitaram Ayurveda Pvt. Ltd., Kerala, India.*

[3]*Jr. Officer, Research & Development Department, Sitaram Ayurveda Pvt. Ltd., Kerala, India.*

[4,5]*Botanist, Quality Control Laboratory, Sitaram Ayurveda Pvt. Ltd., Kerala, India.*

[6,7]*Microbiologist, Quality Control Laboratory, Sitaram Ayurveda Pvt. Ltd., Kerala, India.*

ABSTRACT

The increasing interest in alternative and complementary therapies has spotlighted *Ayurveda*, an ancient system of medicine, for its holistic approach in managing allergies. *Ayurvedic* treatments for allergy typically focus on restoring balance of the Vitiated *Doshas*. This may involve dietary corrections, lifestyle changes, and the use of herbal remedies and rejuvenation therapies. Curcumin, the active component of turmeric, has been extensively studied for its anti-inflammatory, antioxidant, and immunomodulatory properties, which can be beneficial in managing allergic conditions. The current study was conducted for a scientific evaluation of *Allerkhand* tablet, an Ayurvedic patent medicine used to treat allergy and boost immunity. Allerkhand, a poly-herbal tablet formulation with *Curcuma longa* as the main ingredient and 18 other constituents, serves to improve immunity by combining anti-allergic and anti-histaminic effects. The product was subjected to qualitative phytochemical HPTLC, HPLC, and anti-microbial studies. Phytochemical analysis of Allerkhand in aqueous and methanolic extracts revealed the presence of 13 and 8 common compounds, respectively. According to HPTLC and HPLC analysis, sufficient quantity of curcuminoids are present in tablets. Significant antimicrobial zones were found against six bacterial strains. These findings support the traditional use of Allerkhand tablets as a natural remedy in regulating allergic conditions.

Key words: *Allerkhand, Curcumin, Poly-herbal, Antimicrobial, HPTLC, HPLC*

INTRODUCTION

Traditional and herbal medicines have been explored extensively for their potential in mitigating allergic reactions due to their holistic and often multifaceted mechanisms of action.[1] Reactions of the immune system to substances that are generally safe for most individuals, but unsafe in a few is allergy. These things are referred to as allergens and can include dust mites, pollen, pet dander, insect stings, and certain foods. An allergic person's immune system overreacts to an allergen, resulting in symptoms that can be minor to severe.

WHO estimated that around 80% of the world's population is still trusting in traditional or *Ayurvedic* medicines for their healthy survival of life.[2] The importance of medicinal plants is appreciated worldwide, in fact in United States herbal medicine represents a market of approximately $180 billion.[3] This growing popularity and recognition of Ayurveda worldwide, raises the concern regarding the quality assurance, quality control, percentage of active ingredients, interactions, safety and efficacy of the Ayurvedic medicines.[4] Curcuma longa, a rhizomatous herbaceous perennial plant of the ginger family, has

Address for correspondence:
Mr. Bijeshmon PP
Manager, Quality Control Laboratory, Sitaram Ayurveda Pvt. Ltd., Kerala, India.
E-mail: qcm@sitaramayurveda.org

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been traditionally used in *Ayurvedic* and Chinese medicine for its wide range of therapeutic properties. The active component of turmeric, such as curcumin, bisdemethoxycurcumin, and dimethoxy-curcumin[5], has garnered significant scientific interest due to its potent anti-inflammatory, antioxidant, and immunomodulatory effects. It has a broad spectrum of antibacterial actions against a wide range of bacteria, even those resistant to antibiotics.[6] These properties suggest that curcumin could be an effective natural remedy for managing allergic conditions.

Allerkhand tablet is an Ayurvedic formulation that incorporates turmeric along with other synergistic herbal ingredients. This formulation is designed to alleviate allergic symptoms by leveraging the combined therapeutic properties of its constituents. The presence of these additional herbs, along with specific dietary adjuncts like milk, can enhance the bioavailability and activity of curcumin. Drug combination often produces a promising effect in the treatment of diseases over a single drug [7] a desirable therapeutic effect because the potent phytochemical constituents of individual plants are inadequate to achieve the beneficial effect.[8, 9] The popularity of the polyherbal formulation is outstanding because of their wide therapeutic range i.e., effective at a low dose and safe at a high dose, though produces fewer side effects whilst misused.[10, 11] The clinical studies of *Allerkhand* tablets demonstrated a statistically significant reduction in symptoms such as *Toda* (pain), *Kandu* (itching), *Vidah* (burning sensation), and *Varati Dansha Sansthan* (wheals), *Lalima* (redness). Additionally, the study revealed that *Allerkhand* was effective in reducing the total eosinophil count in patients with urticaria. Moreover, it was observed that Allerkhand also had a positive impact on reducing the levels of IgE in individuals suffering from *Sheetapitta* (urticaria).[12] The objective of this research is to evaluate the *Ayurvedic* Poly herbal tablet formulation *Allerkhand* by detailed examination of its physical and chemical properties, identification and quantification of active constituents, particularly curcumin and the antimicrobial activity. This research aims to bridge the gap between traditional knowledge and modern scientific validation, promoting the integration of effective herbal remedies into contemporary healthcare practices.

Materials and Methods

Allerkhand Tablet is a proprietary *Ayurvedic* poly-herbal formulation of Sitaram Ayurveda (P) Ltd., Thrissur, Kerala, India. The tablet was collected from the warehouse of Sitaram Ayurveda (P) Ltd. Thrissur. The formulation composition is as follows.

Table 1: Formulation Composition of *Allerkhand* Tablet.

SN	Botanical	*Sanskrit*	Part Used	Quantity / Tablet
1.	*Curcuma longa*	*Haridra*	Rhizome	0.108 g
2.	*Piper longum*	*Pippali*	Fruit	0.013 g
3.	*Zingiber officinale*	*Nagara*	Rhizome	0.013 g
4.	*Elettaria cardamomum*	*Ela*	Fruit	0.013 g
5.	*Cinnamomum verum*	*Twak*	Stem bark	0.013 g
6.	*Mesua ferrea*	*Nagakesara*	Stamen	0.013 g
7.	*Cinnamomum tamala*	*Pathra*	Leaf	0.013 g
8.	*Tribulus terrestris*	*Gokshura*	Fruit	0.013 g
9.	*Cyperus rotundus*	*Mustha*	Rhizome	0.013 g
10.	*Piper nigrum*	*Maricha*	Fruit	0.013 g
11.	*Embelia ribes*	*Vidanga*	Fruit	0.013 g
12.	*Terminalia bellirica*	*Vibhithaki*	Fruit rind	0.013 g
13.	*Terminalia chebula*	*Harithaki*	Fruit rind	0.013 g
14.	*Emblica officinalis*	*Amalaki*	Fruit rind	0.013 g
15.	*Operculina turpethum*	*Thrivrut*	Root	0.013 g

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16.	*Annabhedi sindhooram*	*Annabhedi*	As Such	0.013 g
17.	Cow's Ghee	*Go Ghrutha*	As Such	0.035 g
18.	Cow's milk	*Go Ksheera*	As Such	1.080 ml
19.	Crystal Sugar	*Sitha*	As Such	0.652 g

Product Specification:

The Allerkhand tablets was observed and analysed for its organoleptic and physicochemical analysis such as colour, odour, taste, size, shape, average weight, pH, loss on drying, hardness, friability, disintegration time, Heavy metals, and microbial analysis. The observations and outcomes of the morphological features were documented.

Pharmacognostic Standardization

Pharmacognostic standardisation was performed in accordance with the Ayurvedic Pharmacopoeia of India guidelines.[13] The parameters like Total Ash, Acid Insoluble Ash, Alcohol Soluble Extractives and Water Soluble Extractives were assessed.

Preliminary Phytochemical Analysis

Phytochemical screening was performed using standard qualitative methods to detect the presence of carbohydrates, sugar, reducing sugar, ketose, amino acid, protein, starch, quinone, glycoside, flavonoid, phenol, saponin, alkaloid, tannin, and coumarin of Allerkhand tablet.[14,15]

High Performance Thin Layer Chromatography (HPTLC):

HPTLC analysis was carried out at Care Keralam - Ayurvedic Resource Centre Koratty, Kerala for the percentage identification of curcumin in *Allerkhand* Tablets.

Chemicals and reagents: TLC plates coated with silica gel 60F254 for HPTLC were purchased from Merck, Germany and Curcumin was purchased from Sigma, USA. All other chemicals, reagents and solvents used are of AR grade.

Sample preparation: 4 *Allerkhand* tablets (4 gm) were refluxed with 100 ml methanol for 30 minutes in soxhlet apparatus, filtered through Whatman filter paper no. 41. The pooled filtrate was concentrated and volume was adjusted to 10 ml with methanol in a volumetric flask.

Standard Curcumin preparation: Standard stock solution was prepared by dissolving 10 mg of Curcumin in 100 ml methanol and sonicated, which yields a solution of concentration 0.1 mg/ml.

Instrumentation and chromatographic condition: A Camag HPTLC system comprising of Linomat V automatic sample applicator with Camag TLC Scanner 3 and CamagWinCAT software was used for detection and quantification of Curcumin in Allerkhand Tablets. The standard solution and test samples were spotted in the form of bands (8 mm bandwidth) with 100 ml Hamilton syringe on pre-coated silica gel plates (Merck, 60F254, 10 x 10 cm) using Camag Linomat V applicator. The plates developed up to 80 mm with a solvent system (Toluene: Glacial Acetic Acid 8:2, v/v) in Camag glass twin-trough chamber previously saturated with mobile phase vapour for 30 min at 25°C. The densitometric scanning was performed on Camag TLC Scanner 3 at absorbance 366 nm (deuterium lamp, slit dimension 4.0 x 0.30 mm) at a speed of 20 mm/s and operated by multilevel WinCATS planar chromatography manager software.

High Performance Liquid Chromatography (HPLC):

The HPLC analysis was carried out at Care Keralam - Ayurvedic resource Centre Koratty, Kerala to determine the presence and concentration of three specific curcuminoids: bisdemethoxycurcumin, demethoxycurcumin, and curcumin in *Allerkhand* Tablet.

Antimicrobial study:

The study aimed to evaluate the antimicrobial activity of the *Allerkhand* Tablet against six different bacterial strains.

Sample preparation

Accurately weighed 4 grams (4 tablets) of *Allerkhand*. Crushed the tablets into the fine powder using a mortar and pestle. Transferred the powdered tablets to a conical flask and added DMSO into it in a ratio of 1:10 (e.g., 4 grams of powder to 40 mL of DMSO). Stirred the

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mixture thoroughly used with a magnetic stirrer. Allowed the mixture to incubate at room temperature for 24 hours. Filtered the mixture through Whatman filter paper and collected the filtrate. The turmeric extract was also prepared the same way and these extracts were used for antimicrobial assay.

The Bacterial strains

The organisms are *Staphylococcus spp., E. coli, Pseudomonas spp., Klebsiella spp., Bacillus spp. and Proteus spp.*

Culture Media

The dehydrated Muller Hinton Agar medium purchased from Hi-media Laboratories Pvt. Ltd., Mumbai was used. The medium was rehydrated, sterilized in an autoclave, and was poured into sterilized Petri plates and allowed to set. The plates were stored at 4-10°C in BOD incubator. Before inoculation, the surface of the Petri plate was dried in an oven.

Antimicrobial Assay by Well Diffusion Method

The Antimicrobial activity was carried out by the well diffusion method.[16,17] The dried plate was inoculated by the bacterial strains uniformly over the surface using a sterile cotton swab. Wells were made using a sterile cork borer (6 mm in diameter) into agar plates containing inoculums. 100µl of each extract of *Allerkhand* and Turmeric (20% w/v) was added to respective wells. The plates were kept in the refrigerator for 30 min to let the extracts diffuse well into the agar. The plates were incubated at 37°C for 16-20 hrs. The zone of inhibition of bacterial growth around the well was measured in millimetres. DMSO at a concentration of 10% was employed as a negative control.

Observations and Results

Product Specification: Organoleptic and physicochemical assessment is the primary identification and quality evaluation of a product perceived by sense organs and with laboratory equipment and prepared the product specification of *Allerkhand* Tablet as follows.

Table 2: Product specification of *Allerkhand* Tablet.

SN	Parameters	Specification
1.	Colour	Greenish yellow
2.	Odour	Characteristic
3.	Taste	Sweet Astringent
4.	Moisture content	NMT 7 %
5.	Dimension of Die	11.32mm
6.	Average Weight	1000 mg ± 5 %
7.	Thickness	6.10 mm± 0.2
8.	Hardness	2.0 -5.0 kg/cm^2
9.	Disintegration Time	Not More Than 30 minutes
10.	Friability	Not More Than 1 %
11.	Total Aerobic Bacteria	1 x 10^5 CFU /g
12.	Total Yeast and Mould	1 x 10^3 CFU /g
13.	*E. coli*	Absent
14.	*Salmonella*	Absent
15.	*P. aeruginosa*	Absent
16.	*S. aureus*	Absent
17.	Heavy metals	As per AYUSH Standard
18.	Shelf Life	3 years from the date of manufacturing

Physicochemical analysis:

Physicochemical parameters of *Allerkhand* Tablet are shown in the Table No. 3. The percentage of total ash, acid insoluble-ash and water-soluble extractives, alcohol soluble extractives were analysed.

Table 3: Physicochemical Analysis of *Allerkhand* Tablet.

SN	Parameters Tested	Unit	Sample-I	Sample-II	Sample-III
1.	Total Ash	%	5.90	5.87	5.18
2.	Acid Insoluble Ash	%	1.44	1.32	1.38
3.	Water Soluble Extractive	%	61.40	63.26	61.08

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4.	Alcohol Soluble Extractive	%	22.66	23.16	21.41

Preliminary Phytochemical Analysis

The preliminary phytochemical analysis was conducted to identify the presence of various bioactive compounds in the methanolic and water extract of Allerkhand Tablet. The results of the phytochemical analysis are summarized below.

Table 4: Phytochemical Constituents of Allerkhand Tablet.

SN	Phytochemical constituents	Test Used	Methanol extract	Water extract
1.	Carbohydrate	Molisch's test	-	+
2.	Sugar	Benedict test	+	+
3.	Reducing sugar	Fehling's test	+	+
4.	Ketose	Seliwanoff's test	-	+
5.	Amino acid	Ninhydrin test	-	-
6.	Protein	Biuet test	-	-
7.	Starch	K I test	-	+
8.	Quinone	H_2SO_4	+	+
9.	Glycoside	Keller killani	-	-
		Liebermann's test	-	-
		Salkowski test	+	+
10.	Steroid		-	+
11.	Terpenoid		-	-
12.	Flavonoid	Alkaline reagent	+	+
13.	Phenol	Phenol reagent test	+	+
14.	Saponin	Foam test	-	-
15.	Alkaloid	Wagner reagent	-	+
16.	Tannin	Ferric chloride test	+	+
17.	Coumarin	NaOH test	+	+

High Performance Thin Layer Chromatography (HPTLC):

The results of the HPTLC analysis are summarized in Fig. 1 & 2.

High Performance Liquid Chromatography (HPLC):

The HPLC analysis successfully identified and quantified the presence of bisdemethoxycurcumin, demethoxycurcumin, and curcumin in the *Allerkhand* tablet. The retention times for each compound were consistent with those of the standards, confirming their presence in the sample.

Table 5: The percentage of curcuminoids in *Allerkhand* Tablet by HPLC

SN	Parameters Tested	Unit	Result
1.	Total Curcuminoids	%	0.21
2.	Bisdemethoxy Curcumin	%	0.036
3.	Demethoxy Curcumin	%	0.05
4.	Curcumin	%	0.13

Antimicrobial Activity

The results of the antimicrobial activity are summarized in Table No. 6 and illustrated in Fig. 3.

Table 6: Zones of Inhibition of *Allerkhand* Tablet against Six Bacterial Strains

SN	Bacterial Strain	Zone of Inhibition (mm)	
		Allerkhand	Turmeric
1.	*Proteus spp.*	16	9
2.	*Staphylococcus spp.*	15	8

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3.	*E.coli*	20	16
4.	*Klebsiella spp.*	18	14
5.	*Bacillus spp.*	22	24
6.	*Pseudomonas spp.*	16	14

The Allerkhand Tablet, containing curcumin, exhibited significant antimicrobial activity against all six tested bacterial strains. The zones of inhibition ranged from 15 mm to 22 mm, indicating good antimicrobial efficacy.

***Proteus spp.* (16 mm):** The 16 mm zone of inhibition suggests that Allerkhand has a good antimicrobial effect against *Proteus spp*. This is important for potential therapeutic applications, especially in treating urinary tract infections caused by this pathogen.

***Staphylococcus spp*. (15 mm):** The zone of inhibition was noted against *Staphylococcus spp.*, a common pathogen responsible for various infections.

***Klebsiella spp.* (18 mm):** The zone of inhibition against *Klebsiella spp.* suggests that Allerkhand can be effective in treating respiratory and urinary tract infections caused by this pathogen.

***Escherichia coli* (20 mm):** The tablet showed significant activity against Escherichia coli, indicating its potential in treating gastrointestinal infections.

***Bacillus spp.* (22 mm):** The highest zone of inhibition was observed against *Bacillus spp*. This suggests that Allerkhand is particularly effective against Gram-positive bacteria, possibly due to the ability of curcumin to disrupt the bacterial cell membrane and inhibit cell division.

***Pseudomonas spp*. (16 mm):** The zone of inhibition was against *Pseudomonas spp.*, given the notorious resistance of this bacterium to many conventional antibiotics.

Discussion

The organoleptic and physicochemical analyses of the *Allerkhand* tablet provide a comprehensive assessment of its quality, safety, and efficacy. The total ash content was found to be below 6%, indicating the presence of inorganic matter within acceptable limits for herbal formulations. The acid-insoluble ash content was below 1.5%, suggesting a low amount of siliceous material, which reflects good purity. The water-soluble extractive value is more than 60 %, while the alcohol-soluble extractive value is more than 21%. These values indicate the presence of a significant amount of active constituents extractable by both solvents, confirming the bioavailability of therapeutic compounds in the tablets. These methods ensure that the tablet meets the required standards for Ayurvedic formulations, guaranteeing consistency and reliability in its therapeutic use.

The preliminary phytochemical analysis of *Allerkhand* tablets reveal a rich composition of bioactive compounds in both methanol and water extracts. The presence of sugar, reducing sugar, quinone, glycoside, flavonoid, phenol, tannin, and coumarin in both extracts, along with carbohydrates, ketose, starch, steroid, and alkaloid in the water extract, underscores the tablet's multifaceted therapeutic potential. These findings provide a scientific basis for the traditional use of *Allerkhand* tablets in managing allergic conditions and microbial infections, supporting their continued use and further investigation in clinical settings.

The HPTLC analysis indicates the presence of curcumin in three samples of *Allerkhand* tablet confirming its authenticity and potential therapeutic benefits. The successful identification and quantification of curcumin in the *Allerkhand* Tablet using HPTLC demonstrate the reliability and efficiency of this method for quality control in herbal products. This analysis is crucial for ensuring the consistency and efficacy of turmeric-based formulations in the market. The *Allerkhand* tablet contains significant amounts of bisdemethoxycurcumin, demethoxycurcumin, and curcumin, as determined by HPLC analysis. These findings suggest that the tablet is a reliable source of curcuminoids, which are known for their potential health benefits. The microbial results demonstrate that the Allerkhand Tablet possesses broad-spectrum antimicrobial activity against both Gram-positive and

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Gram-negative bacteria. The significant zones of inhibition observed against all tested strains underscore the potential of Allerkhand as a natural antimicrobial agent. These findings support the traditional use of curcumin in Ayurvedic medicine and highlight its promise for developing alternative treatments for bacterial infections.

CONCLUSION

The comprehensive analysis of Allerkhand Tablet provides substantial insights into its quality, safety, and efficacy. This study not only reinforces the traditional knowledge but also paves the way for further research and development, ensuring that Allerkhand Tablet can be reliably used in clinical practice for managing allergic disorders.

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REFERENCES

1. Rizvi SAA, Einstein GP, Tulp OL, Sainvil F, Branly R. Introduction to Traditional Medicine and Their Role in Prevention and Treatment of Emerging and Re-Emerging Diseases. Biomolecules 2022; 12: 1442.
2. Chaudhary A, Singh N. Contribution of world health organization in the global acceptance of ayurveda. J. Ayurveda Integ. Med. 2011; 2:179-86.
3. Ruby Pawankar, MD, Giorgio Walkter Canonica, Stephen T. Holgate, Richard F. Lockey. World Health Organization. White Book on Allergy 2011-2012: Executive Summary.
4. Ajay Chavan, Rahul Gujarathi, Dipti Chavan, Sumod Khedekar, Ankita Mukhedkar. llergic Rhinitis and its Explanation in Ayurveda – A Review. Pak Heart J 2023;56(02).
5. Sharma R, Gescher A, Steward W. Curcumin: The story so far. Eur. J. Cancer 2005; 41, 1955-1968.
6. Hussain Y, Alam W, Ullah H, Dacrema M, Daglia M, Khan H, Arciola CR. Antimicrobial Potential of Curcumin: Therapeutic Potential and Challenges to Clinical Applications. Antibiotics 2022; 11, 322.
7. Karole S, Shrivastava S, Thomas S, Soni B, Khan S, Dubey J, Dubey SP, Khan N, Jain DK, Polyherbal Formulation Concept for Synergic Action: A Review, Journal of Drug Delivery and Therapeutics. 2019; 9(1-s):453-466.
8. Pandey MM, Rastogi S, Rawat AKS. Indian traditional ayurvedic system of medicine and nutritional supplementation. J Evidence Based Complementary Altern Med 2013;1–12.
9. Garg V, Dhar VJ, Sharma A, Dutt R. Facts about standardization of herbal medicine: a review. Zhong Xi Yi Jie He Xue Bao 2012; 10:1077-83.
10. Srivastava S, Lal VK, Pant KK. Polyherbal formulations based on Indian medicinal plants as antidiabetic phytotherapeutics. Phytopharmacology 2012; 2:1-15.
11. Kapoor VK, Singla S. Herb-drug interactions–an update on synergistic interactions. J. Alt. Med. Res 2015; 1:1-11.
12. Santosh Ekanath Chavan, Shubhangi Katkar, Sibi Narayanan. The study of efficacy of Allerkhand (patent drug) on Sheetapitta (Urticaria). Journal of Technology. 2024; 12(3).
13. Anonymous, The Ayurvedic Pharmacopoeia of India, Part - I, Vol. IV. First Edition. Govt. of India, Ministry of Health and Family Welfare, Dept. of AYUSH, New Delhi; 2004. p. 159-160.
14. Chaudhary S, Negi A, Dahiya V. The study of in vitro antimicrobial activity and phytochemical analysis of some medicinal plants in chamoli garhwal region. Phcog. J. 2010; 2:481-485.
15. Evans WC. Trease & Evans. Pharmacognosy. 2009;16th edition.
16. Magaldi S, Mata-Essayag S, Hartung de Capriles C. Well diffusion for antifungal susceptibility testing. Int. J. Infect. Dis. 2004; 8:39-45.
17. Valgas C, De Souza SM, Smania EFA. Screening methods to determine antibacterial activity of natural products. Braz. J. Microbiol. 2007; 38:369-380.

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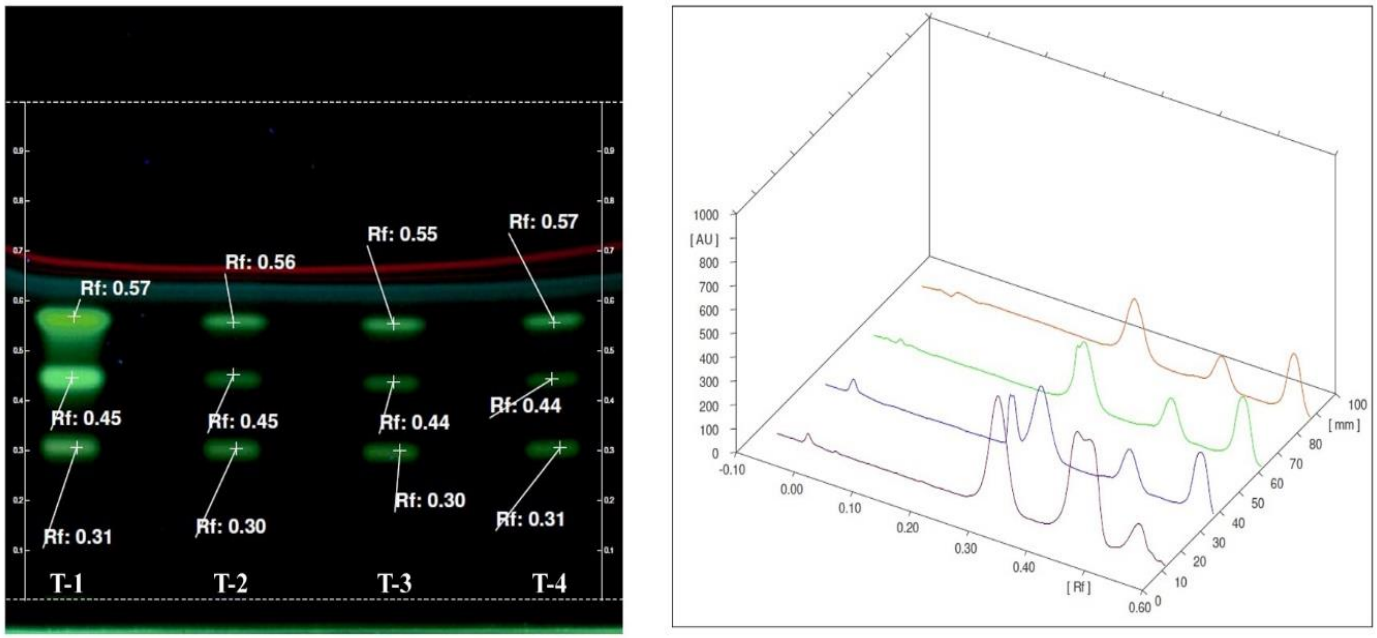
Figures:



T-1: Curcumin Standard, T-2: Allerkhand Sample –I, T-3: Allerkhand Sample –II, T-4: Allerkhand Sample –III

Figure 1: HPTLC Chromatogram and densitometric diagram of Allerkhand Tablet with Standard Curcumin

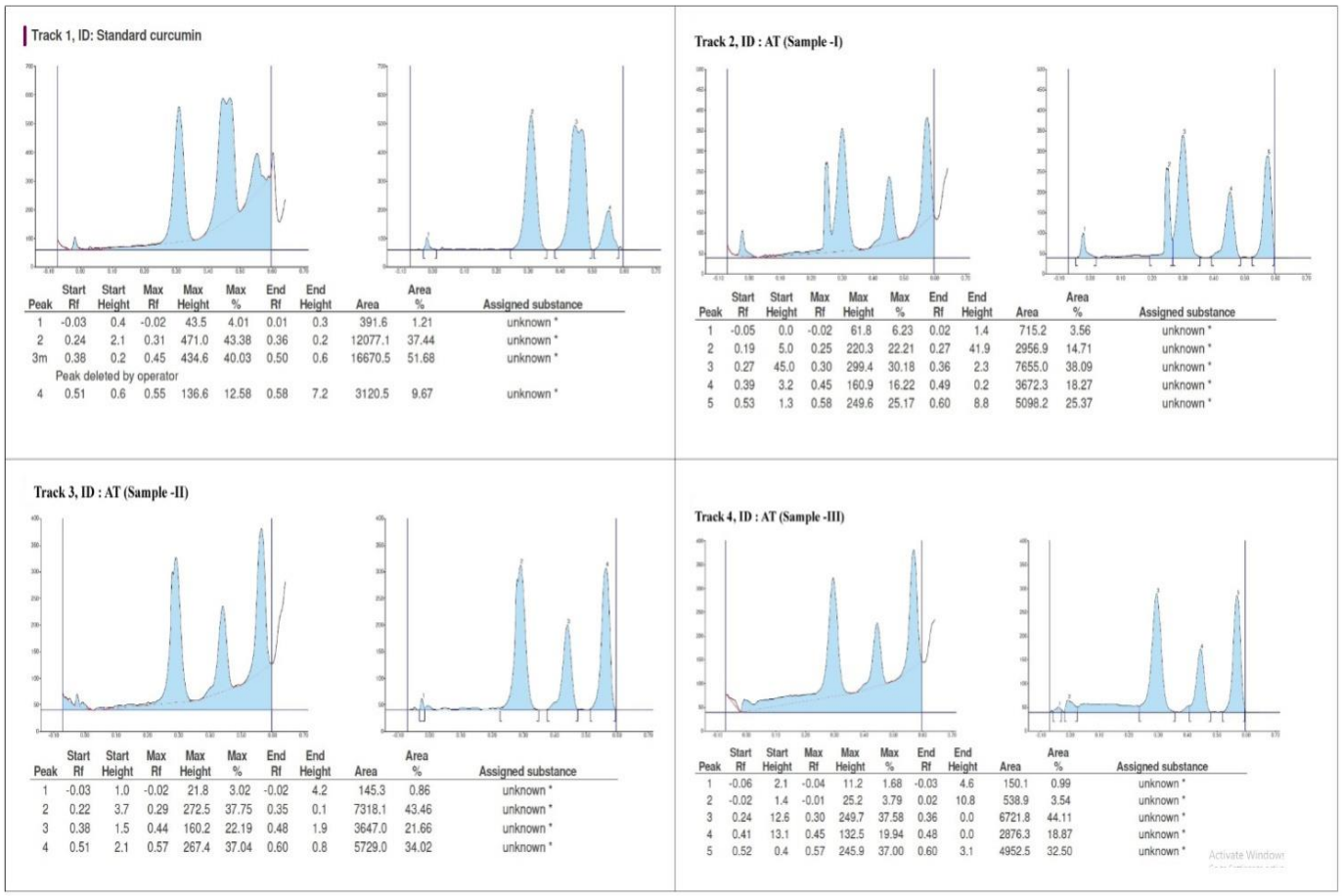


Figure 2: HPTLC tracks of Allerkhand tablet with standard Curcumin

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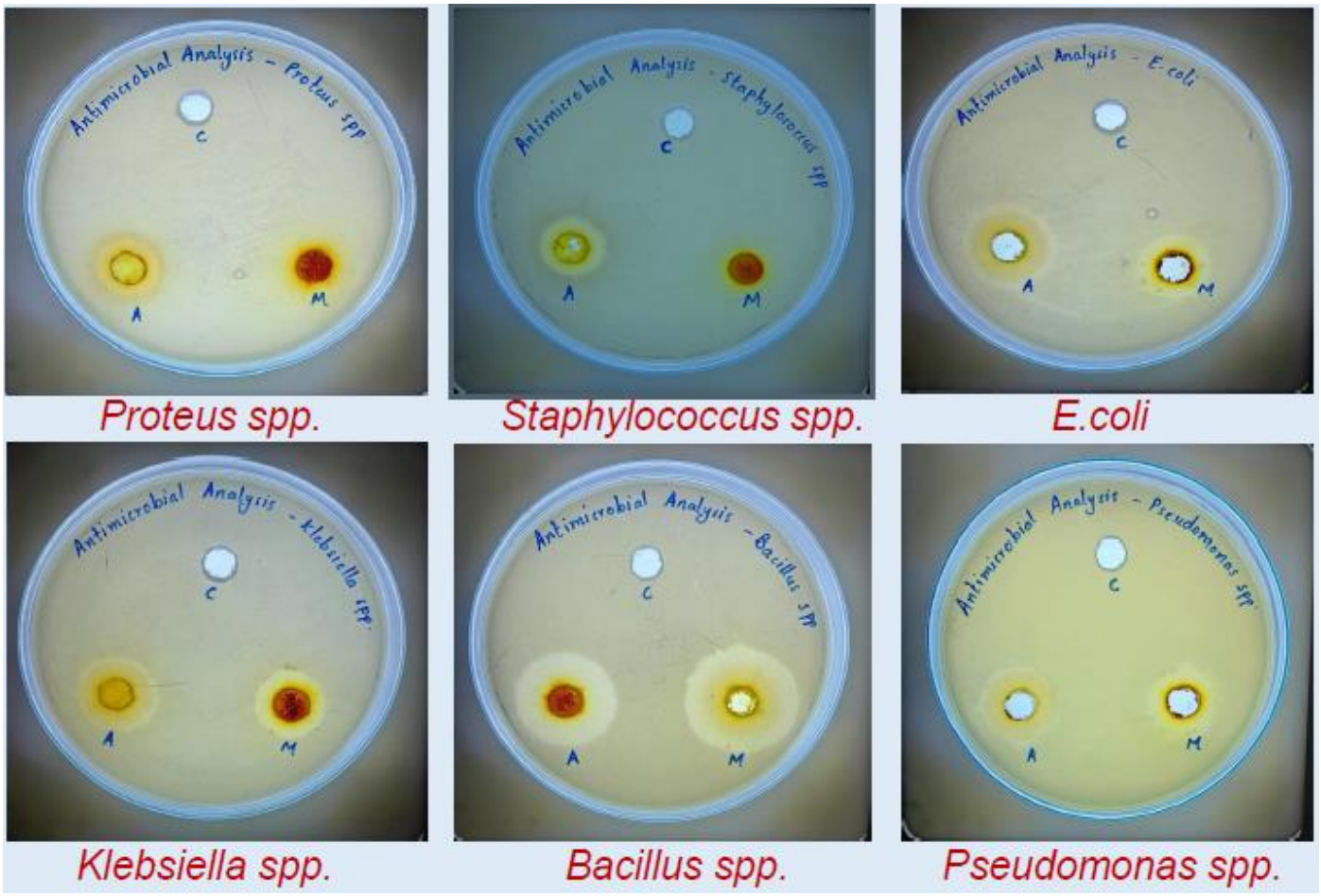

Figure 3: Zones of Inhibition of Allerkhand Tablets in Agar Plates

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