CONTENTS

Sl. No Particulars		Page No.	
1.	List of Tables	iv	
2.	List of Figures	v	
3.	List of abbreviations	vi	
4.	Abstract	vii	
5.	Introduction	1	
6	Review of Literature	3	
7.	Theoretical Consideration	8	
8.	Materials and Methods	10	
9.	Result and Discussions	22	
10.	Summary and Conclusions	40	
11.	References	42	

Table No.	Title	Page no.
4.1	Coding of samples and temperature of treatments attained	13
4.2	Experimental Design	15
4.3	Empirical models used for modelling	19
5.1	Textural Degradation, curcumin content and water holding capacity of turmeric rhizome under different treatment	24
5.2	Total color change of turmeric powder samples for different treatments	27
5.3	Analysis of variance table for traditional treatment	30
5.4	Goodness of fit for traditional treatment	30
5.5	Analysis of variance table for improved traditional	30
5.6	Goodness of fit for improved traditional	31
5.7	Solutions for 8 combinations of categoric factor levels for traditional treatment	31
5.8	Solutions for 8 combinations of categoric factor levels for improved traditional	31
5.9	Validation of Optimized results	32
5.10	Change in pasting properties of different optimized turmeric samples.	36
5.11	Moisture content after and before drying at 60 ° C for 6 hrs	37
5.12	Coefficients table of Empirical models	38
5.13	Theoretical model :Diffusivity coefficients	38
5.14	Diffusivity of tray drying at 60°C	39
5.15	Proximate composition of optimized pre-treated rhizome	39
5.16	The physical behaviour of optimized samples	39

LIST OF FIGURES

Fig No.	Title	Page no.
3.1	Traditional method of pretreatment	8
4.1	Washed turmeric rhizome	11
4.2	Preparation of samples	11
4.3	Plan of work	14
4.4	Traditional Boiling	16
4.5	Microwave pre- treatment	16
4.6	Microwave pre-treated samples	16
5.1	(a)Texture (Hardness) profile of turmeric samples	25
	(b)Texture (Hardness) profile of turmeric samples	26
5.2	Effect of treatment on texture	28
5.3	Effect of treatment on curcumin	28
5.4	Effect of treatment on Water Holding Capacity	28
5.5	Photographic images of treated turmeric samples	29
5.6	SEM results of respective samples at a magnification of 500X	33
5.7	SEM results of respective samples at a magnification of 1000X	34
5.8	SEM results of respective samples at a magnification of 2000X	35
5.9	RVA graphs of optimized samples.	36
5.10	Drying curve of optimized samples at 60°C	37

٧

LISTOF ABBREVIATION

Symbols	Meaning	
RVA	Rapid Visco analyzer	
a,b,c,d	Empirical coefficients	
R ²	Correlation co- efficient	
SSE	Sum of square error	
RMSE	Root mean square error	
%	Percent	
MR	Moisture ratio	
BIS	Bureau of Indian Standards	
PFA	Prevention of Food Adulteration	
AGMARK	Agricultural Marketing	
FAO	Food and Agricultural Organization	
W	Wattage	
wb	Wet basis	
nm	nanometer	
AOAC	Association of Official Agricultural Chemists	
WHC	Water Holding Capacity	
Wo	initial weight	
W	sample weight after each experiment	
.Ws	weight of the dry matter	
ΔΕ	Total difference on color	
ANOVA	Analysis of Variance	
C.V	Co-efficient of variance	
df	Degree of freedom	
cP	cP centipoise	
k	k Diffusivity coefficient	
±	Standard Deviation	