FORMULATION,DEVELOPMENTANDINVITROEVALUATION BEZAFIBRATE FAST DISSOLVING TABLETS

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ABSTRACT

Thepurposeofthisstudywastousethesoliddispersionmethodtocreate,test,andassess bezafibratetabletsthatdissolvequickly.Thegoaloftheformulationprocedurewastoimprove the bioavailability and rate of dissolution of bezafibrate, a medication that is not very soluble in water. To guarantee the quality and consistency of the tablets, precompression parameters including thickness, diameter, hardness, friability, medication content, and weight fluctuation were adjusted. To ascertain stability under various storage settings, the in vitro assessment comprisedmeasuringdispersiontime,wettingtime,anddissolutionprofilesoverathree-month period. The results provide important information on the formulation and performance of the bezafibrate fast-dissolving tablets and indicate that they have the potential to enhance drug delivery and patient compliance.

Keywords:soliddispersion,fast-dissolvingtablets,bezafibrate,andinvitrotesting.

1. INTRODUCTION

Drug delivery systems (DDS) are a tactical instrument for prolonging product life cycles, creating possibilities, and broadening markets and indications. The most common method of achieving systemic effects is oral administration because of its convenience, painlessness,avoidance,adaptability,and—aboveall—patientcompliance.Additionally,solid oral delivery devices are less expensive to produce since they don't need sterile conditions. Tablets are the preferred solid dose form because to its high precision dosing, patient compliance,andproductionefficiency.Theoralrouteisstillthebestwaytoprovidetherapeutic drugssinceitisinexpensive,easytomanufacture,andresultsinhighpatientcompliancerates. Soliddoseformsareusedmoreoftenthananyothertypeofdosageform.Becauseoraldosage forms can be self-administered by the patient and are clearly more profitable to manufacture thanparenteral dosageforms, whichmust typicallybeadministered bytrained personnel, oral solid formulations in particular hold great promise for being the most convenient drug administration methods.

Morethan80percentofmedicationsdesignedtohavesystemiceffectsaresoldinoral dose forms. Today, granules, pellets, tablets, and capsules are the most often used pharmaceutical solid oral dose forms. The company prefers tablets over other solid oral dose forms because to their improved stability and comparatively inexpensive manufacturing, packing,andshippingcosts.Powders,granules,pellets,orfilm-coatedmultipleunitscanallbe used directly to make the tablets. Nowadays, tablets are the most widely used dosage form, making up around 70% of all pharmaceutical preparations made in an ethical manner. Currently, drug items are made for three different demographics: adults, children, and newborns.Itisclearthatnewbornshavedifferentrequirementsthanchildrenbetweentheages oftwoandtwelve,andthatchildren'sneedsdifferfromadults'needs.However,becauseolder peoplehaveuniquedemandsthatneedfordoseformscreatedspecificallyforthem,theirneeds are being disregarded.

The majority of dose forms given to the elderly are pills or capsules, despite the fact that many senior patients have trouble swallowing them. Although it is straightforward and cost-effective to makeuncoatedtablets, theyare frequentlydifficult to swallowandcan cause discomfortby"hanging"inthethroat.Althoughcoatedtabletsandcapsulesarealittlesimpler toswallow,thisisacauseforconcernaspeopleageandasmoremedicinalproductsaregiven tooneperson.Althoughliquiddosageformsareeasiertogive,theyaremoreexpensive,more likelytospill,haveinherentstabilityissues,takeupalotofspaceperdoseunit,andfrequently tastebad.Itisclearthatthedemandsoftheelderlyaredifferentfromthoseofothergroupsand should be given particular consideration when developing new drugs, formulating products, posology, packaging, labeling products, providing patient information, and promoting and selling products. For these patients, a novel and useful dose form might be beneficial.

There are a number of fast-dissolving products available right now. For the administration of high molecular weight proteins and peptides, the development of improved oralproteindeliverytechnologythroughtheuseoffast-dissolvingtabletsthatmayreleasethese medications in the mouth is extremely promising.

Idealtreatmentforapatientwithdysphasiaisafast-dissolvingpill,whichdissolvesin the patient's mouth in a matter of seconds without the need for chewing or water. As saliva travels down the stomach, certain medications are absorbed from the mouth, throat, and esophagus. In these situations, the bioavailability is higher than what is seen with traditional dose forms. [1]

Pharmaceutical dose forms intended for oral administration may be challenging for elderlyand pediatric patients to chew or swallow. There is growing interest in fast-dissolving dosage forms for oral, sublingual, and buccal administration because tablets that disintegrate quickly when they come into touch with saliva in the buccal cavity may offer a solution to those issues. For these individuals, fast-dissolving or disintegrating tablets are ideal because, when put on the tongue, the active ingredient is released instantly by rapid disintegration or dispersion, followed by drug dissolution.

Theidealtreatmentforapatientwithdysphasiaisafast-dissolvingpill,whichdissolves in the patient's mouth in a matter of seconds without the need for chewing or water. As saliva travels down the stomach, certain medications are absorbed from the mouth, throat, and esophagus. In these situations, the bioavailability is higher than what is seen with traditional dose forms.

In both business and academics, the benefits of oral dissolving dosage forms are becomingmorewidelyacknowledged.Superdisintegrantsarethefundamentalmethodutilized inthecreation ofthe fast-dissolvingtablet. Inthe currentinvestigation,crospovidone,sodium starch glycolate, and croscarmellose sodium were tested; the best one was selected for more research.

Spray drying, molding, mass extrusion, direct compression, freeze-drying, vacuum-drying, and sublimation utilizing sublime agents like menthol and camphor are some of the methodsusedtopreparemouth-dissolvingtablets.However,becauselow-substitutedhydroxyl propyl cellulose (L-HPC) and microcrystalline cellulose (MCC) were utilized as excipientsin these tablets, patients can experience a rough mouth because of the insufficient solubilization of this type of tablet in saliva. We tried using Perlitol SD200 as an excipient in place of crystallinecelluloseandL-HPCwhilemakingthiskindoftabletinordertogetridofthiskind oforaldiscomfort.However,becauseofits lowporosity,whichmakesit difficult forwaterto enter the tablets, Perlitol SD200, when used as a water-soluble excipient in tablets, does not dissolvequicklyinsaliva.Researchershaveexploredtheaforementionedmethodstooptimize the tablet matrix's pore structure [3].

The output of freeze drying is brittle and hygroscopic, and it is laborious. For this reason,thevacuum-dryingmethodwaschosenforthecurrentstudy.Afteraddingasubliming agent to boost the tablets' porosity, vacuum drying was used. A porous hydrophilic matrix is probablygoingtoabsorbthedisintegratingliquidwitheaseandshatterrapidly.Using

sublimation materials with Perlitol SD200. As a sublimating agent, we selected ammonium bicarbonate, thymol, camphor, and menthol [4].

2. MATERIALSANDMETHODS

Materials

Bezafibrate was acquired from (CHEMICO SCIENTIFIC, ERODE); Avicel pH 102, sodiumstarchglycolate,magnesiumstearate,andtalcwereacquiredfrom(Cidcompany,Giza, Egypt); polyethylene glycol (PEG4000), poly vinyl pyrrolidine, and carboxymethyl cellulose (CMC) were acquired from (EL. Nasr pharmaceutical chemicals Co. Egypt); potassium dihydrogen orthophosphate, disodium hydrogen orthophosphate, and absolute ethanol were acquired from (CHEMICO SCIENTIFIC, ERODE); and commercial haloperidol was bought locally. Every reagent and solvent employed was of analytical quality

METHODS

PREFORMULATIONSTUDIES[14,15]

Both the medicine and the polymer must be chemically and physically defined before being formulated into a dosage form. When creating a dosage form, preformulation studies provide the information required to identify the nature of the drug ingredient and to create a framework for the drug combination with pharmaceutical excipient.

Fouriertransforminfrared(FTIR)spectroscopy

The compatibility of the drug and its excipients was examined, and the Perkin-Elmer 1600 FTIR spectrophotometer was used to compare the spectra of pure haloperidol powder, Avicel pH 102, polymer, SSG, magnesium stearate, physical combination, and a chosen solid dispersionformulausingthepotassiumbromidedisktechnique.Theresolutionswere1cm−1, and the wave number scanning range was 4000–400 cm−1.

Differentialscanningcalorimetry(DSC)

Shimadzu DSC-60 was used to do the analysis. Under a nitrogen purge (30 ml/min), samplescontaining5mgofpurefenofibratepowder,excipients,physicalmixture,andachosen soliddispersionformulawereheatedinhermeticallysealedaluminumpansbetween0and200 °Cat a steadyrate of10°C/min.

Solubilitystudy:

Distilled waterwasused to test thesolubilityof both purebezafibrate and polymer. In screw-cap bottles, 10 milliliters of water were mixed with an excess of the medication and a weighted amount of physical combination (175.28 mg). For 72 hours, each bottle was shaken in a shaker water bath set at 25°±0.5 °C. Once equilibrium was achieved, the solutions were filtered, and a spectrophotometer was used to measure the drug's concentration at λ max 243 nm (Huang and Dai, 2014).[42]

Solubilityenhancement ratio wascalculated using the followingequation.

$$\text{Solubility enhancement ratio (SER)} = \frac{\text{Solubility of drug in presence of polymer}}{\text{Solubility of drug in water}}$$

Preparationofphysicalmixture:

The precisely weighed amounts of medication and polymer were combined in a glass mortar with a pestle to create a physical combination of bezafibrate with the polymers PEG 4000, PVP, and CMC at various ratios (1:2, 1:4, 1:6, and 1:8). After passing through sieve number 60, this mixture was kept in a desiccator for twenty-four hours.

Preparationofsoliddispersionof Bezafibrate

Meltingandsolventevaporationtechniqueswereusedtocreatesoliddispersionswith Bezafibrate and polymer (PEG4000, PVP, and CMC) at the ratios of 1:2, 1:4, 1:6, and 1:8.

Melting method

Bezafibrate alone and the polymer were melted in a porcelain plate to create solid dispersions. A temperature range of 60 to 70 °C was maintained for the fusion process. With vigorous stirring, the molten fluid was promptly cooled and hardened in an ice bath. The solidobtained was crushed, pulverized, scraped, and run through sieve number sixty. Before being employed for additional research, the resulting product was kept in a desiccator (Dhote et al., 2014). [43]

Solventmethod

This approach involved dissolving the polymer and bezafibrate in 0.38 milliliters of ethanol.Atransparent,solvent-freefilmwasleftbehindoncethesolventwasevaporated.To

maintain its weight, the film was further dried. The finished product was kept in a desiccator untilitwasneededagainaftertheco-precipitatewascrushedandthedrypowderwentthrough filter number 60 (Adeli, 2016). [44]

Formulationandpreparationof tablets

Thedirect compression methodwasusedtocreatetabletsofsoliddispersion,physical mixture, and pure bezafibrate. The solid dispersions and physical mixes containing 5 mg of bezafibrate were weighed and mixed evenly with diluents .(Avicel), lubricant (Magnesium stearate) and super disintegrants (Sodium starch glycolate) according to Table 1. All the ingredientswerepassedthroughsievenumber60priortomixingandthendirectlycompressed usingcompressionmachine(Singlepunchtabletmachinefittedwith10mmflatfacedpunches and dies (Korsh Forgeries; type AO, Berlin, Western Germany) (Yasir and Sara, 2014).

Table1:Compositionoftabletscontainingbezafibratesoliddispersion.

Code	Formulation	Type of polymer and Method	Drug (mg)	Polymer (mg)	Ethanol solvent (mg)	Avicel (mg)	Sodium starch glycolate (mg)	Mg. stearate (mg)	Total weight (mg)
FP	Pure drug	-	5	-------	-------	160	8.25	1.73	75.28
FPM	Physical mixture	-	5	40	------	120	8.25	1.73	75.28
F1	SD1	PEG / solvent evaporation	5	40	0.3	120	8.25	1.73	75.28

F2	SD2	PEG / melting	5	40	------	120	8.25	1.73	74.98
F3	SD3	PVP / solvent evaporation	5	40	0.3	120	8.25	1.73	75.28
F4	SD4	PVP /melting	5	40	------	120	8.25	1.73	74.98
F5	SD5	CMC / solvent evaporation	5	40	0.3	120	8.25	1.73	75.28
F6	SD6	CMC/ melting	5	40	-------	120	8.25	1.73	74.98

FP:Tablet containingpuredrug.

FPM:Tabletcontainingphysicalmixture.

F1:TabletcontainingPEGsoliddispersionpreparedbysolventevaporationmethod. F2:

Tablet containing PEG solid dispersion prepared by melting method.\

F3:TabletcontainingPVPsoliddispersionpreparedbysolventevaporationmethod. F4:

Tablet containing PVP solid dispersion prepared by melting method.

F5:TabletcontainingCMCsoliddispersionpreparedbysolventevaporationmethod. F6:

Tablet containing CMC solid dispersion prepared by melting method.

Dissolutionstudies

TheDissolutionPharmaTestertypeII(pharmatestsp6400,Mph,Germany)wasused toassessthein-vitrodissolutionstudyofbezafibrateeitheraloneorfromsoliddispersionsand physicalcombinations.900ccofphosphatebuffer(pH=6.8),37°C±0.5°C,and50rpmwere usedforthedissolvingtest.Tothedissolvingmedia,aweightquantityequalto5mgof

bezafibratewasadded.At5,10,20,30,40,50,and60minutes,asample(5ml)ofthesolution wastakenoutofthedissolvingdevice.Theequalamountofnewdissolvingmediawasusedin lieuofthesample.Afterbeingdiluted,theextractedmaterialswerefilteredthroughWhatman filterpaperandtheirbezafibrateconcentrationwasmeasuredatλmax243nm.Everyrunwas carried out three times. The standard curve was used to determine the amount of medication dissolved (Yasir and Sara, 2014). [45]

3. RESULTSANDDISCUSSION

There is a significant rate of non-compliance because many patients, particularly the elderly, have trouble swallowing pills, capsules, and fluids. As a result, numerous safer and more advanced drug delivery methods have been developed as a result of non-compliance-orientedresearch. Oneexampleofthisisa tabletthatdissolvesordisintegratesquickly,either because of its fast disintegration or because it dissolves with saliva.

Thismedicationdeliverymethodissignificantbecauseitmaybeadministeredwithout water,hasaquickstart ofaction, is portable, accurate,andis a good substitute forliquid dose forms. It is also perfect for both pediatric and elderly patients. The terms "rapi-melts,""fast dissolving tablets,""melt in mouth tablets,""rapi-melts,""immediately dissolving tablets,""poroustablets,""Oro-dispersibletablets,"and"fastdisintegratingtablets"areinterchangeable withtheterm"fastdissolvingtablets."Thesetabletsarewidelyusedasthepreferreddoseform due to their distinctive advantages in terms of patient compliance, quick onset of action, enhanced bioavailability (often bi-pass first pass effect), and high stability.

Since water-insoluble diluents such microcrystalline cellulose, dicalcium phosphate, andL-HPCarepredictedtoproduceanintolerablegrittinessinthemouth,theywereexcluded fromtheresearch.Mannitolwaschosenasamodelsolublediluentamongthesolublediluents due to its benefits, which include relative moisture insensitivity, economic effectiveness, ease ofavailability,andnegativeheatofdissolution.Bezafibratemouth-dissolvingpillsweremade using the sublimation process and four subliming agents: ammonium bicarbonate, menthol, thymol, and camphor.

Evaluationofprecompressionproperties

A medication and excipient blend was created for each intended formulation, and its pre-compression characteristics were assessed and are displayed in Table 2. For every formulation, the tapped density ranged from 0.67±0.01 to 0.730±0.03 gm/cm3, whereas the bulk density ranged from 0.52±0.04 to 0.58±0.01 gm/cm3. The percentage of compressibility derived from densitydata ranged from 16.1±0.03% to 25.8±0.04%. It was discovered that the angle of repose ranged from 25.1±0.03 to 29.7±0.02. The Hausner ratio was found to range between 0.35±0.05and1.22±0.02.Therangeofbulkinesswasdeterminedtobe1.74±0.02to 1.89±0.05. Since all of the formulations exhibit fair to good flow characteristics for direct compression, tablets were made utilizing this method.

Table2:Resultsofprecompressionproperties

Formulation	**Angleof repose(^{0})***	**Bulkdensity (gm/cm^3)***	**Tapped density (gm/cm^3)***	**Carr's index(%) ***	**Hausner ratio (HR)***	**Bulkiness (cc/g)***
F1	28.0±0.01	0.57±0.01	0.69±0.01	17.6±0.05	1.24±0.041	1.74±0.02
F2	29.7±0.02	0.55±0.02	0.73±0.02	24.7±0.04	1.22±0.05	1.80±0.04
F3	25.1±0.03	0.56±0.03	0.71±0.02	21.1±0.04	1.27±0.04	1.76±0.04
F4	26.1±0.01	0.53±0.02	0.72±0.02	25.8±0.04	1.35±0.05	1.85±0.04
F5	27.5±0.02	0.57±0.02	0.67±0.02	20.8±0.03	1.26±0.04	1.89±0.05
F6	25.1±0.03	0.52±0.04	0.68±0.01	16.1±0.03	1.29±0.04	1.75±0.04

*Allvaluesareexpressedasmean±SD,n=3

CRYSTALPROPERTIES:

Thebezafibrateundergoesthreeroundsofprocessing,whichcausestheparticlesizeto fall from 14 µm to 7 µm and increases the surface area. After micronization, bezafibrate's melting point remains unchanged.

Table:3 ParticleSize Parameters

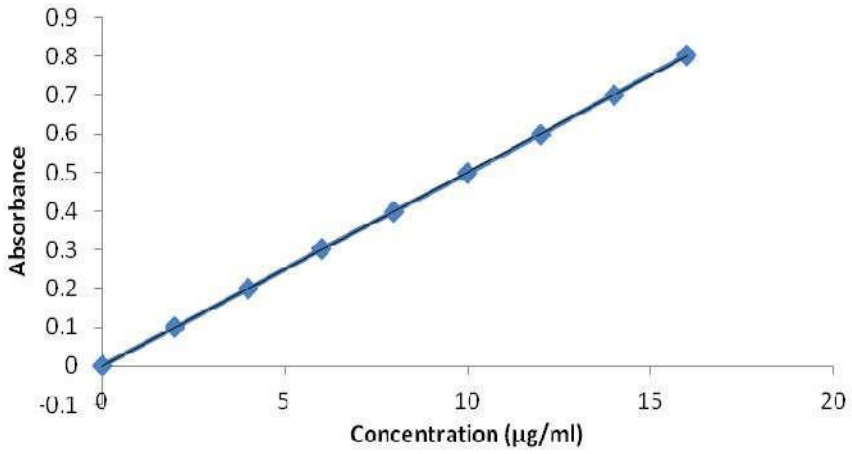
Particle Parameters		**Non-micronized**	**AfterIstcycle**	**After2ndcycle**	**After3rdcycle**
Particle size(µm)	D(0.10)	1.323	0.946	0.871	0.800
	D(0.50)	7.004	5.141	4.451	3.925
	D(0.90)	13.713	10.362	9.517	7.832
Surfacearea(m^2/g)		0.76	1.12	1.48	1.94
Melting point		80	79	81	80

ANALYTICALPROPERTIES:

The medication complies with Beer Lambert's law in the concentration range of 2–16 mcg/ml, according to the standard calibration curve. The table and standard calibration graph were provided below.

Table:4BezafibrateAPIstandardcalibrationcurvedata

Concentration(µg/ml)	**Absorbance**
2	0.099
4	0.199
6	0.301
8	0.400
10	0.497
12	0.598
14	0.701
16	0.803



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Thelinearassociationbetweenconcentrationandabsorbancewasdemonstratedbythecorrelation coefficient values, which were Y=0.0501X-0.0011 and R2=0.9995.

Evaluationofpostcompressionpropertiesoffastdisintegratingtablet

The direct compression method was used to make the tablets. Due to the free-flowing natureofthepowdermaterial,tabletswithuniformdiefillproducedweightvariancesthatwere consistent with pharmacopeial requirements. All of the tablets were white, odorless, convex, and flawless, with no flaws on their surfaces. The permitted limit for the drug concentration was between 97.15 and 100.21%, while the tablets' hardness ranged from 3.8 to 4.0 kg/cm2. The tablets' good mechanical resistance was shown by their friability, which was determined to beless than1%. The formulations'diameter ranged from 9.7±0.01 to 10.2±0.01 mm, while their thickness ranged from 2.8±0.02 to 3.2±0.02 mm. Every parameter was discovered to be well within the specified range (table 10).

Table5:ResultsofPostCompressionPropertiesofBezafibrateTablets

Formulation code	**Diameter (mm)***	**Thickness (mm)***	**Hardness (kg/cm2)***	**Friability (%)*****	**Drug content(%) ****	**Weight variation (mg)****
F1	10.1±0.02	3.0±0.01	4.0±0.1	0.32±0.01	98.12±0.04	199±0.01

F2	9.8±0.01	3.1±0.02	3.9±0.12	0.45±0.02	98.35±0.05	200±0.01
F3	9.7±0.01	3.2±0.02	4.0±0.05	0.45±0.01	97.15±0.05	198±0.01
F4	10.2±0.01	2.8±0.02	3.9±0.09	0.55±0.04	99.15±0.02	197±0.02
F5	10.1±0.02	2.9±0.02	4.0±0.08	0.61±0.03	100.12±0.03	202±0.02
F6	10.2±0.01	3.0±0.01	3.8±0.01	0.71±0.03	98.45±0.02	201±0.02

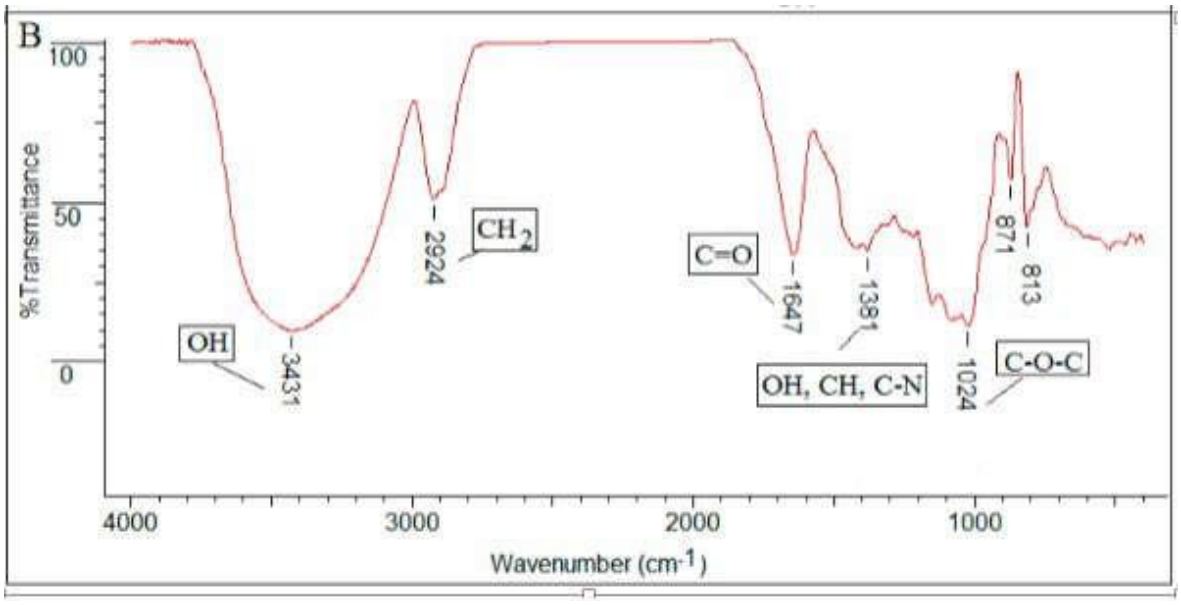
*Allvaluesareexpressedasmean±SE,n=5;**Allvaluesareexpressedasmean±SE, n=20;

***Allvaluesareexpressedasmean±SE,n=10.

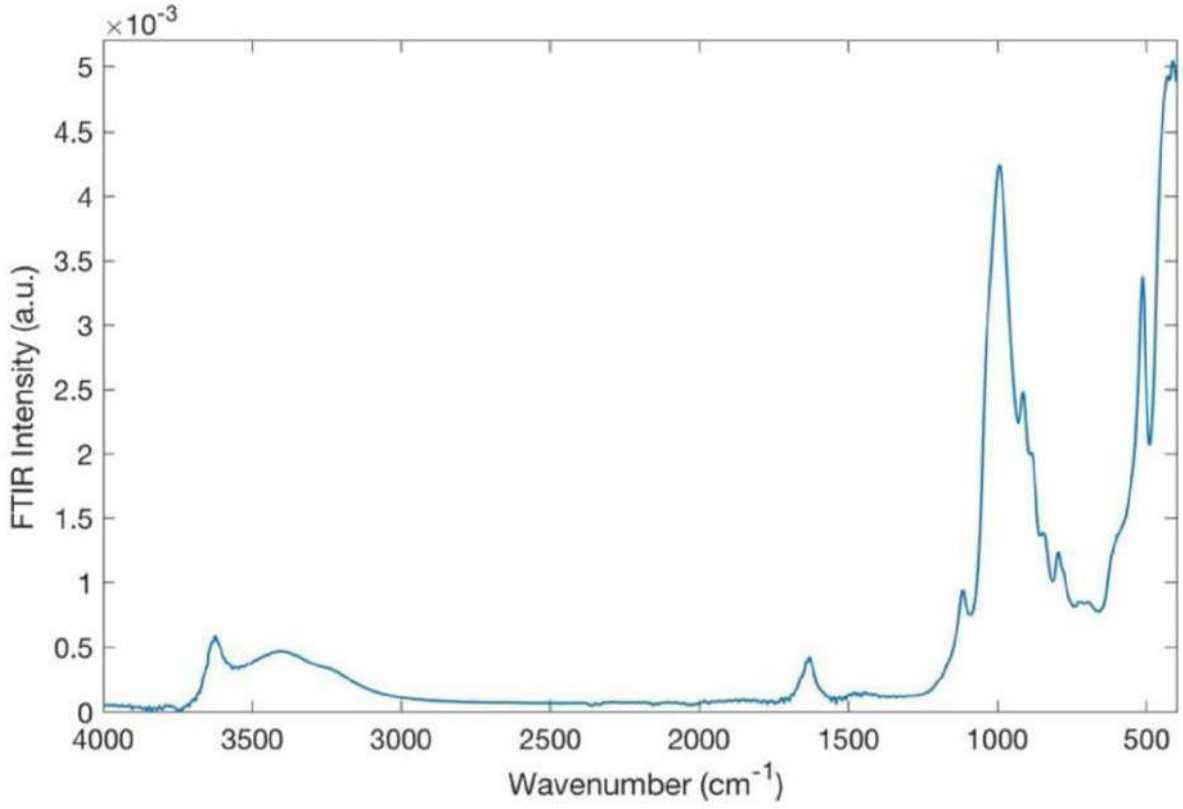
4. CompatibilityStudies:

Fouriertransforminfra-redspectroscopy(FTIR)

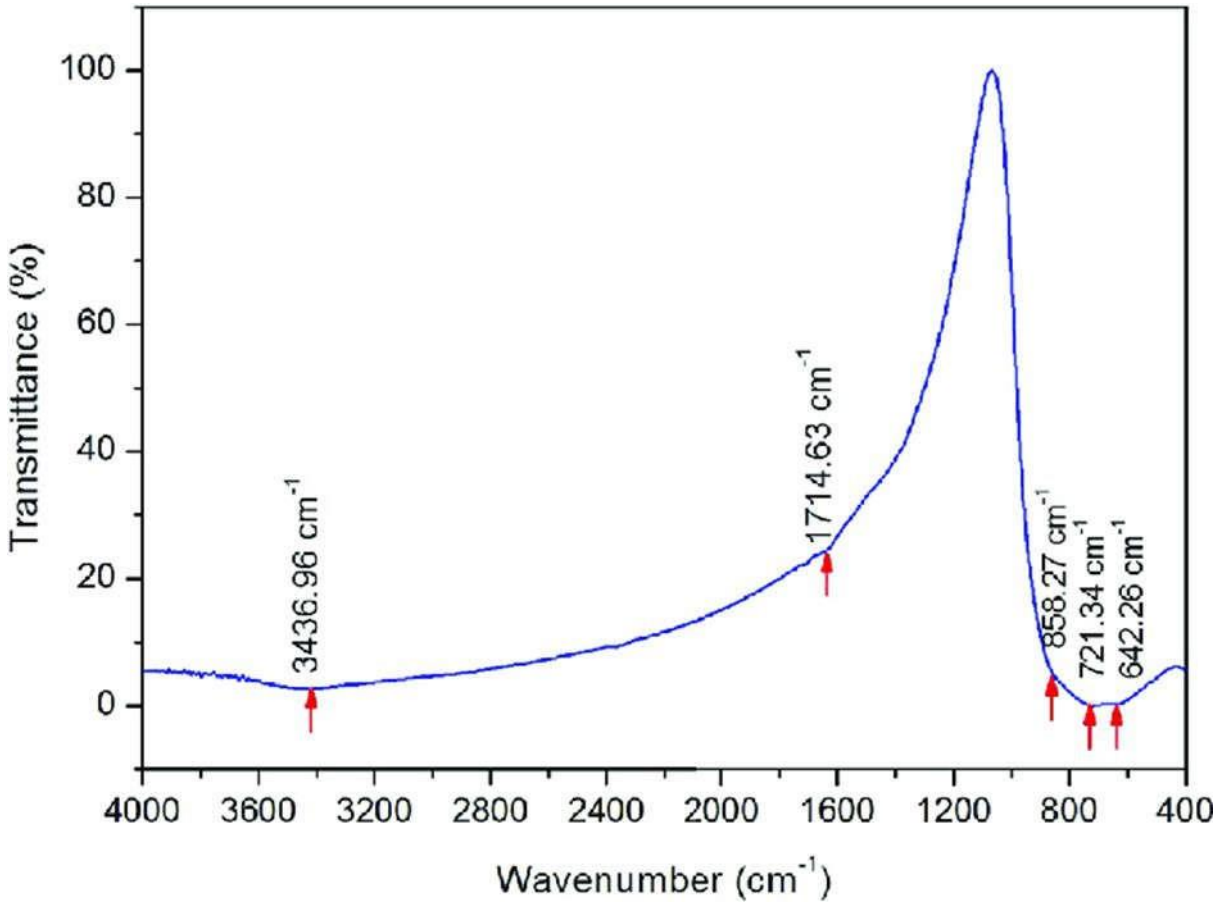
FT-IR was used to determine the infrared spectra of bezafibrate and its physical combination with formulation excipients. and are shown in Figure 2. The spectra of pure bezafibrate revealed distinct peaks at 3431, 2924, 1647, 1381, 1024, 871, and 813 cm−1. The FTIRspectraofbezafibrateanditsphysicalcombinationwithexcipientsareidentical;nopeak shift, principal peak disappearance, or principle peak alteration suggests that the drug and excipients are not interacting.



FTIRof Bezafibrate



FTIRof CarboxyMethylCellulose

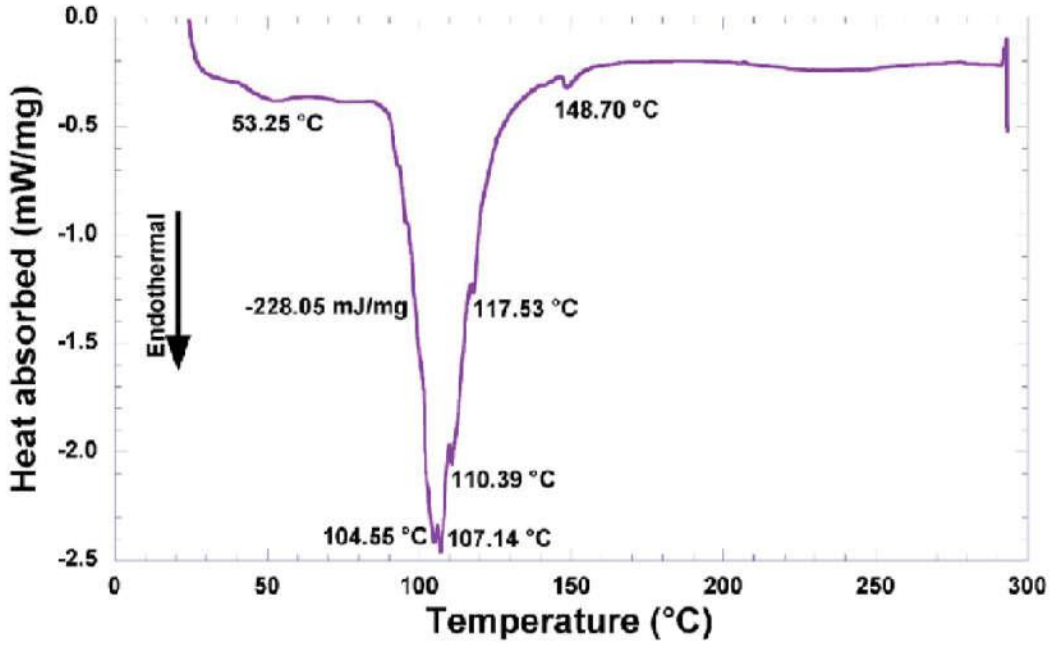


FTIRof PolyVinyl Pyrrolidone.

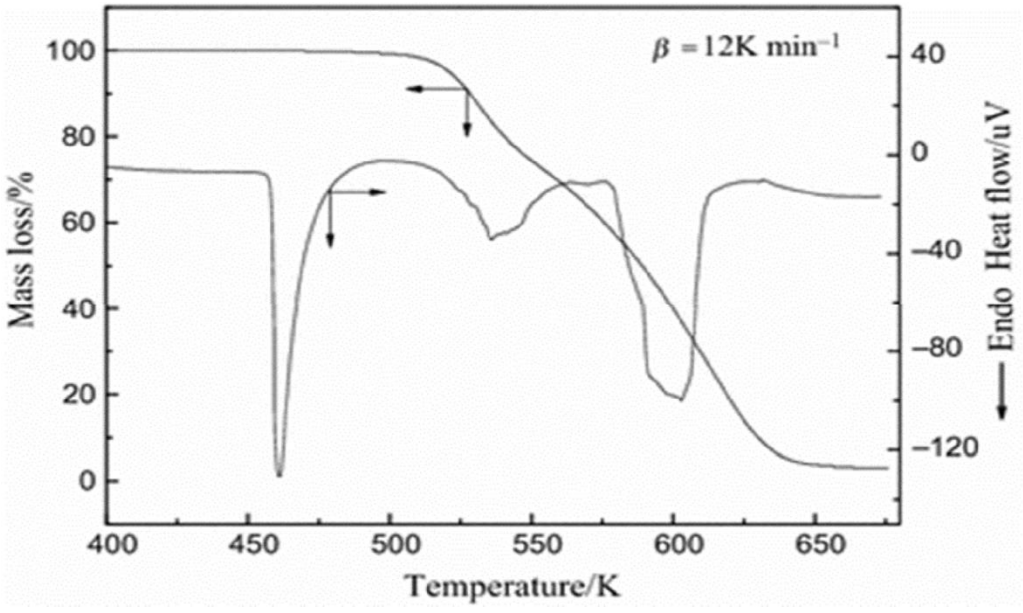
DifferentialScanningCalorimetry (DSC)

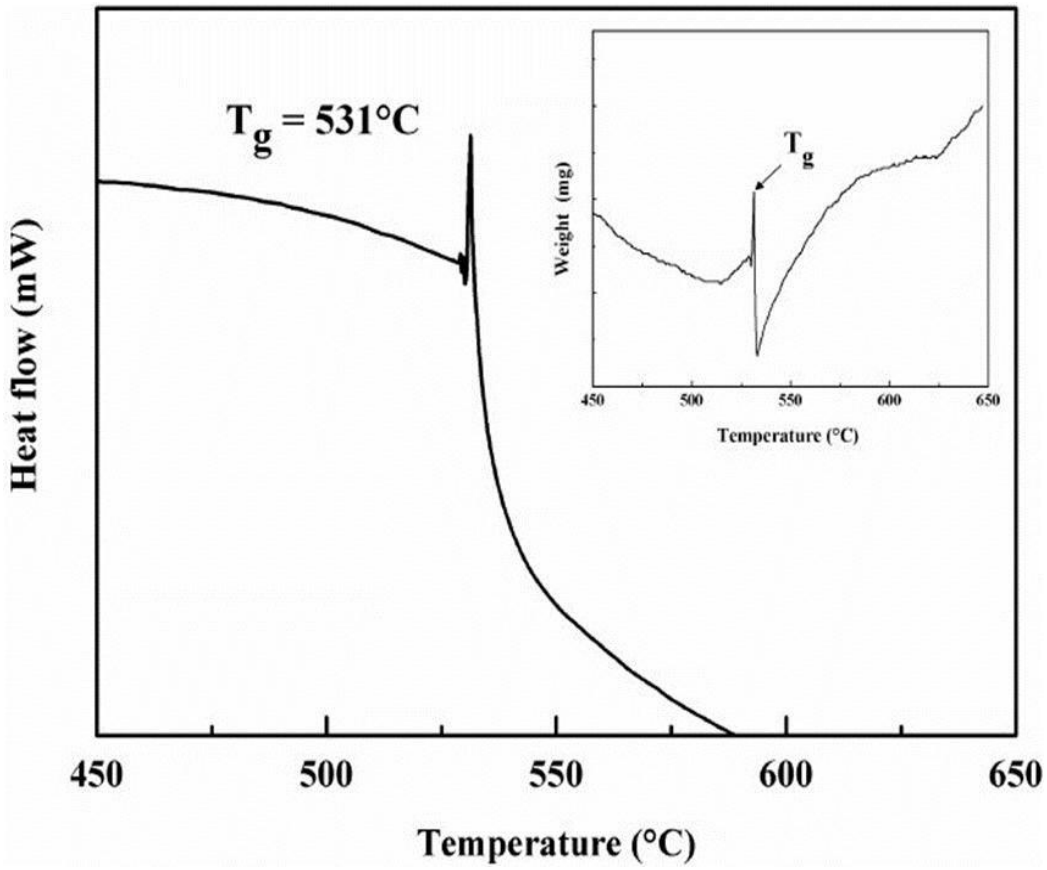
Purebezafibrate'sDSCexamination(Figure3)revealedadistinctive,sharpendotherm peakat104.55°C,whichcorrespondstoitsmeltingtemperatureandshowsthatthemedication iscrystalline.Therewasnochangeorinteractionbetweenthedrugandexcipients,asindicated by the DSC analysis of a physical combination of the drug and excipients, which showed a veryslight change in the melting point of bezafibrate in the presence of excipients. The batch that included crospovidone disintegrated the fastest, according to the findings of the early screening investigations. It was chosen for more research as a result. Because polyvinylpyrrolidone is widely utilized in the industry, it was employed as a binder at a concentration of 10% wt/vol. In the initial tablet formulations, subliming chemicals including menthol, camphor, thymol, and ammonium bicarbonate were utilized to improve the pills' porosity. Tablets containing menthol disintegrated more quickly than tablets containing ammoniumbicarbonate,camphor,andthymol.Inordertoexaminetheimpactofvarying

amountsofmentholondisintegration time,batches F3through F6were created.Theduration of sublimation (6–12 hours)



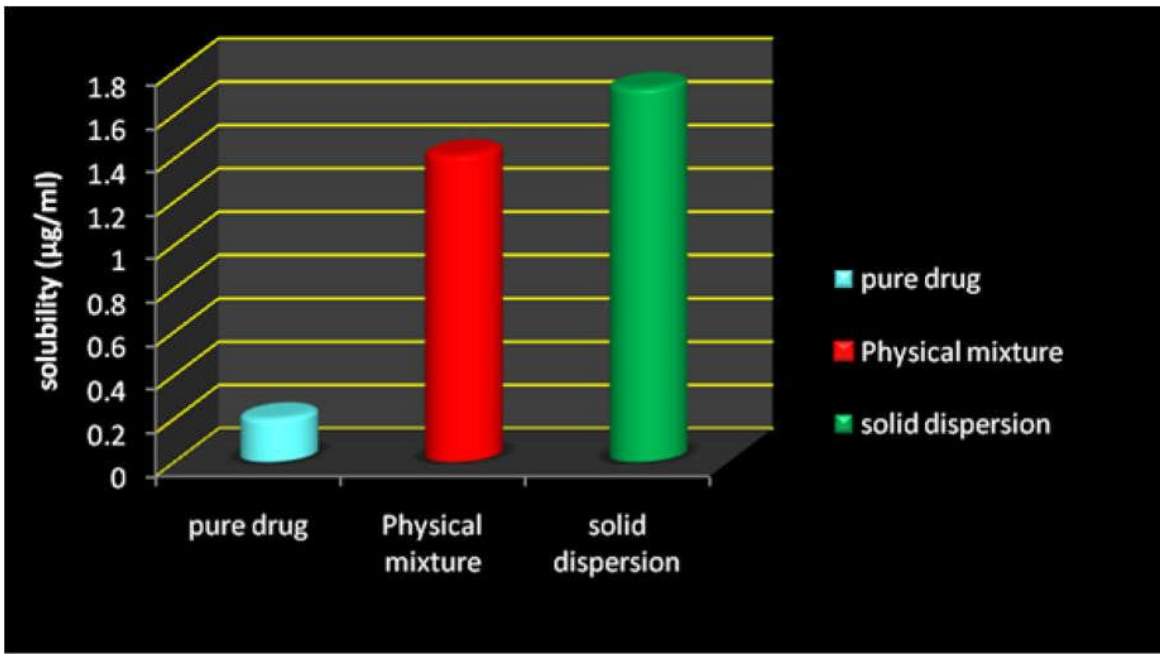
DSCof Bezafibrate





DSCof CarboxyMethyl Cellulose

6.3.3Stability study



5. StabilityStudiesofBezafibrate,preformulationandformulations.

At one, two, and three months, the optimized formulation F6 was charged on accelerated stability and observed for appearance, hardness, friability, drug content, in-vitro dispersion time, wetting time, and dissolution profile analysis.

Up to three months of stability investigations for F10 formulations at various temperatures show no appreciable differences in appearance, color, odor, taste, hardness, friability,drugcontent,in-vitrodispersiontime,wettingtime,andin-vitrodissolutionresearch.
Under accelerated temperature and humidity conditions, the formulation remained stable (figure 9).

Thedifferentstagesofswellingof fastdissolvingtabletsareshownin

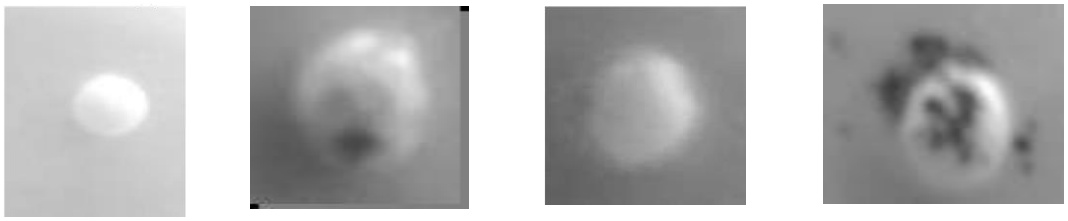


Figure18: Different stagesofSwellingof Fast DissolvingTablet**s**

6. *IN-VITRO*RELEASEOFBEZAFIBRATETABLETS:

Poly Vinyl Pyrrolidine (K-25) was utilized in formulations F1, F2, and F3 at concentrations of 4%, 6%, and 8%, with 4.5 grams of surfactant added in a dry mix. The resultingreleasewas83.72%,86.41%,and84.95%,respectively.Therefore,itwasdetermined to further modify the formulation in order to increase the release rate. When 4.5 grams of surfactant and 6% PVP K-25 were added to the binder solution in the F4 formulation, the releasewas89.41%.Onlysurfactantinvaryingpercentagesindrymix:bindersolutionas1:2, 2:1 wereutilizedin theF5 andF6 formulations, and release was discovered to be95.44%and 96.34%.

Whensurfactantwasaddedat1:2proportions,thepercentageofdrugreleaserose.For even better results, the ideal amount of granulation fluid was applied. Strong swelling propertiesandaveryporousstructureofPVPK25arealsoresponsibleforthehigherdissolving profile,whichismostlyattributabletotheinclusionofsuperdisintegrantssuchcroscarmellose sodium.

7. SUMMARYANDCONCLUSION

The primary goal of FDT is to accelerate tablet dissolving, which maybe achieved by choosingasuperdisintegrantwiththeidealconcentration.Usingthesublimationprocesswith menthol, camphor, ammonium bicarbonate, and thymol as sublimating agents, we created mouth-soluble tablets of bezafibrate for the current study.

Whencreatingmouth-dissolvingtablets,thesublimationprocessusingavacuumoven might be a useful substitute for the more costly adjuvant and complex equipment. With batch F6 pills, the wetting time or simulated saliva penetration was found to be extremely quick.

Withinthefirst10minutesofthedissolvingresearch,itwasdiscoveredthatthewhole amount of medication from the optimized batch was released. Saliva quickly dissolved these pills (in 10–20 seconds). Popular as a dosage form for the treatment of hyperlipidemia, the producedtabletoffersadvantagesintermsofpatientcompliance,lowdose,quickbeginningof action, enhanced bioavailability, minimal side effects, and good durability.

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