Office de la Propriété Intellectuelle du Canada
Un organisme d'Industrie Canada

Canadian Intellectual Property Office
An agency of Industry Canada

CA 2802142 A1 2011/10/20

(21) 2 802 142

(12) DEMANDE DE BREVET CANADIEN
CANADIAN PATENT APPLICATION

(13) A1

(86) Date de dépôt PCT/PCT Filing Date: 2010/06/03
(87) Date publication PCT/PCT Publication Date: 2011/10/20
(85) Entrée phase nationale/National Entry: 2012/12/10
(86) N° demande PCT/PCT Application No.: IN 2010/000367
(87) N° publication PCT/PCT Publication No.: 2011/128906
(30) Priorité/Priority: 2010/04/12 (IN1199/MUM/2010)

(51) Cl.Int./Int.Cl. *A61K 9/50* (2006.01), *A61K 31/4439* (2006.01), *A61K 9/00* (2006.01)

(71) Demandeur/Applicant:
S. ZHAVERI PHARMAKEM PVT. LTD., IN

(72) Inventeur/Inventor:
JAVERI, UMA RAJAN, IN

(74) Agent: ASQUITH, ANTHONY

(54) Titre : COMPOSITION SECHE DE CIPROFLOXACINE POUR SUSPENSION BUVABLE
(54) Title: CIPROFLOXACIN DRY SYRUP COMPOSITION

(57) Abrégé/Abstract:
Disclosed herein is a process for preparation of taste masked dry syrup composition of ciprofloxacin comprising Ciprofloxacin taste masked granules along with at least one pharmaceutically acceptable excipient. The present invention also discloses a stable taste masked dry syrup composition of ciprofloxacin.

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
20 October 2011 (20.10.2011)

PCT

(10) International Publication Number
WO 2011/128906 A1

(51) International Patent Classification:
A61K 9/50 (2006.01) *A61K 31/4439* (2006.01)
A61K 9/00 (2006.01)

(21) International Application Number:
PCT/IN2010/000367

(22) International Filing Date:
3 June 2010 (03.06.2010)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
1199/MUM/2010 12 April 2010 (12.04.2010) IN

(71) Applicant *(for all designated States except US)*: **S. ZHAVERI PHARMAKEM PVT. LTD.** [IN/IN]; 109, Shiv Smruti Chambers, 49 Dr. A. B. Road, Worli, Mumbai 400 018, Maharashtra (IN).

(72) Inventor; and

(75) Inventor/Applicant *(for US only)*: **JAVERI, Uma, Rajan** [IN/IN]; 109, Shiv Smruti Chambers, 49 Dr. A. B. Road, Worli, Mumbai 400 018, Maharashtra (IN).

(74) Agent: **SREE, Aruna, P.**; Gopakumar Nair Associates, 3rd Floor, "Shivmangal", Near Big Bazaar, Akurli Road, Kandivali (East), Mumbai 400 101, Maharashtra (IN).

(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

— *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*

— *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))*

— *of inventorship (Rule 4.17(iv))*

Published:

— *with international search report (Art. 21(3))*

— *with amended claims (Art. 19(1))*

WO 2011/128906 A1

(54) **Title**: CIPROFLOXACIN DRY SYRUP COMPOSITION

(57) **Abstract**: Disclosed herein is a process for preparation of taste masked dry syrup composition of ciprofloxacin comprising Ciprofloxacin taste masked granules along with at least one pharmaceutically acceptable excipient. The present invention also discloses a stable taste masked dry syrup composition of ciprofloxacin.

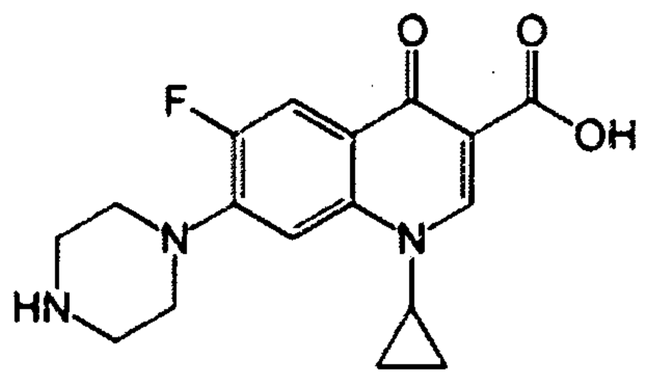
"CIPROFLOXACIN DRY SYRUP COMPOSITION"

TECHNICAL FIELD OF THE INVENTION:

The present invention relates to a process for preparation of taste masked dry syrup composition of ciprofloxacin comprising ciprofloxacin granules along with at least one pharmaceutically acceptable excipient. The present invention also relates to pharmaceutical composition prepared by the said process.

BACKGROUND OF THE INVENTION:

Ciprofloxacin was first disclosed in US Patent No. 4670444 granted to Bayer A.G. in 1983 and subsequently approved by the United States Food and Drug Administration (FDA) in 1987. Ciprofloxacin is a drug used to treat bacterial infections. It is a second generation fluoroquinolone antibacterial. It kills bacteria by interfering with the enzymes that cause DNA to unwind and duplicate. Chemically Ciprofloxacin is known as 1-cyclopropyl- 6-fluoro- 4-oxo- 7-piperazin- 1-yl- quinoline- 3-carboxylic acid, having a following structure:



Ciprofloxacin has been used in various formulations such as tablets, granules, injection, suspension etc. but it is desirable to formulate in syrups or dry syrups for administration to children. The syrup or dry syrup preparation is suitable not only for children but also aged persons in view of easier administration. Particularly, dry syrup preparation is advantageous because it is easily weighed and packaged and further it is convenient for carrying.

US Patent No. 5695784 discloses a pharmaceutical composition containing an active ingredient which is flavour-masked by microcapsulation having a rapid release of an active ingredient and high bioavailability characterized in that the active ingredient is Ciprofloxicin and is present as the anhydrate of its base form and contains less than 5% of water in the form of water of crystallization or other water adducts and is present in an

oily juice formulation and the capsule walls consist of a coating which comprises a cationic copolymer of dimethylaminoethyl methacrylate and neutral methyacrylic acid esters, neutral methyl ester and/or ethyl ester compounds of polymethacrylic acid; quaternary ammonium compounds of polymethacrylic acid, or ethylcellulose and triethylcitrate and optionally hydroxypropylmethylcellulose and the microcapsules have a size of 10 to 800 .mu.m.

US Patent No. 6136347 discloses a pharmaceutical composition comprising microcapsules, said microcapsules comprising an active ingredient microencapsulated within a microcapsule wall, wherein said active ingredient is present in said microcapsules as an anhydrate of its base form, said microcapsule wall comprises a coating of water-insoluble neutral methyl or ethyl ester compounds of polymethacrylic acid or a mixture thereof, or quaternary ammonium compounds of polymethacrylic acid or a mixture thereof, or ethylcellulose, and wherein the microcapsule wall further comprises triethylcitrate and optionally hydroxypropylmethylcellulose, and said microcapsules are free of disintegrants.

US Patent No. 6565877 discloses a taste masked composition comprising a bitter tasting drug selected from the group consisting of erythromycin, clarithromycin, ciprofloxacin, norfloxacin, cefuroxime, ceftriaxone, chloramphenicol, chloropromazine and their pharmaceutically acceptable salts and esters, and a combination of two enteric polymers comprising, a methacrylic acid copolymer and a phthalate polymer, wherein the ratio of methacrylic acid copolymer to phthalate polymer is between 1:9 or 9:1.

US Patent Publication No. 2006039981 discloses a taste-masked pharmaceutical dosage form comprising one or more drugs and one or more cationic polymers synthesized from dimethylaminoethyl methacrylate and neutral methacrylic acid esters, wherein the wt/wt ratio of the drug to polymer is less than about one to two.

US Patent Publication No. 20030133982 discloses a solid dosage form, comprising a matrix core comprising intragranular ethylcellulose and a water soluble active agent granulated and compressed together with extragranular ethylcellulose, and a film coating

comprising a hydrophobic polymer, wherein the film coating completely encases the matrix core. The said solid dosage form is a tablet.

US Patent Publication No. 20020197327 discloses a taste masked pharmaceutical composition comprising a microcapsule, wherein the microcapsule comprises a pharmaceutically active agent core coated with a taste masking effective amount of a water-insoluble enteric coating, wherein the coating comprises a weakly acidic methacrylic acid-ethyl acrylate copolymer.

British Patent No. 2081092 also discloses a lipid coating for the purpose of taste masking. It was however found that wax coating resulted in poor dissolution of the active ingredients in the alimentary tract. Further the patent discloses a technique to overcome this problem by mixing the waxes with a water swellable polymer. Again the use of the water swellable polymer referred to in the patent makes it less appropriate for the liquid orals like suspensions and dry syrup.

The bitter taste of the drugs, which are orally administered, is disadvantageous in several aspects. Taste is an important parameter governing the patient compliance. The disagreeable taste of drugs causes difficulties in swallowing or causes patients to avoid their medication, thereby resulting in low patient compliance. Conventional taste masking techniques such as use of sweeteners, amino acids, flavoring agents are often unsuccessful in masking the taste of the highly bitter drugs like quinine, barberin, etoricoxib, antibiotics like levofloxacin, ofloxacin, sparfloxacin, gatifloxacin, ciprofloxacin, cefuroxime axetil, erythromycin and clarithromycin. Thus, taste-masking technologies are considered important and are developed by many researchers.

Taste masking is a major problem when the drugs are extremely unpleasant and bitter. Further, this problem is not only restricted to the liquid oral compositions like solutions, dry syrups and suspensions but may also be encountered during the formulation of chewable tablets or dispersible tablets wherein these dosage forms usually lead to perceptible exposure of active ingredient to taste buds.

Many patients, especially children and elderly, have trouble in swallowing whole tablets and even capsules. It is therefore desirable to administer drugs to such patients either as a

liquid dosage form or as a fast dissolving or fast disintegrating solid dosage form. Fast dissolving or disintegrating solid dosage forms, due to their ease of administration and pleasant taste, may encourage patients to adhere to daily medication regimens and therefore provide better compliance. These dosage forms combine the advantages of both liquid and conventional tablet formulations, and also offer advantage over both traditional dosage forms. For example, they provide the convenience of a tablet formulation while also allowing the ease of swallowing provided by a liquid formulation. They also allow the luxury of much more accurate dosing than the primary alternative, oral liquids.

The processes used for taste masking in the prior arts listed above involve multiple steps which are technically complicated and difficult to reproduce, and economically disadvantageous. Therefore, there exists a need for taste masked dosage form, with higher patient compliance, economical and easy to manufacture.

Therefore, the main objective of the present invention is to prepare a taste masked dry syrup composition comprising ciprofloxacin, which is stable, having higher patient compliance, easy to manufacture and hence economical and useful for oral administration. Further the said composition is in single or multiple, easy-to-take dosage form which is mixed with water prior or suitable diluents to use.

SUMMARY OF THE INVENTION:

In accordance with the above objective the present invention provides a process for preparing stable taste masked dry syrup composition comprising ciprofloxacin in its base form.

In another aspect, the present invention provides a taste masked dry syrup composition prepared by the said process for oral administration. The composition so produced is mixed with water or diluents prior to use.

In yet another aspect a dry syrup composition of the present invention is having higher patient compliance, easy to manufacture and hence, economical. Further the said composition is in single or multiple, easy-to-take dosage form.

DETAILED DESCRIPTION OF THE INVENTION:

The invention will now be described in details in connection with certain preferred and optional embodiments so that various aspects thereof may be more fully understood and appreciated.

The present invention describes a process for preparing the stable taste masked dry syrup composition comprising ciprofloxacin in its base form for oral administration.

The present invention also describes dry syrup composition of ciprofloxacin comprising taste masked coated ciprofloxacin base granules along with at least one pharmaceutically acceptable excipients. Ciprofloxacin in its base form is present in an amount of 50 to 250mg/ml.

The present invention provides the dry syrup composition which is stable, having higher patient compliance, easy to manufacture and hence economical. Further the said composition is made available in single or multiple, easy-to-take dosage form.

In an embodiment the said single dosage form is to be mixed with 100 ml to 150 ml water prior to dispensing or consuming whereas said multiple dosage form is to be diluted with diluting fluid comprising of at least one diluting fluid selected from sorbitol solution, glycerine, sucrose syrup, xylitol, malitol, propylene glycol, polyethylene glycol and combinations thereof is mixed with flavors which is supplied along with the taste masked granules of the present invention. The diluting fluid is present in the range of 10 to 90% of the total weight.

In another embodiment of the present invention the dry syrup composition is granulated using one or more granulating agent along with solvent. The granules so formed are coated with coating agent and solvent.

In a preferred embodiment the present invention discloses a stable taste masked dry syrup composition of ciprofloxacin comprising ciprofloxacin granules along with at least one pharmaceutically acceptable excipient prepared by a process comprising steps of:

(a) granulating the ciprofloxacin base with granulating agents;

(b) coating the granules of step (a) with the coating solution of methacrylate copolymer in solvent to obtain taste masked ciprofloxacin granules;

(c) mixing taste masked ciprofloxacin granules of step (b) with suspending agent, sweeteners, flavour, glidant, lubricant and buffering agent to obtain dry syrup and

(d) packing the dry syrup of step (c) into single dose sachet or multiple dose container.

In another preferred embodiment the said ciprofloxacin taste masked dry syrup composition is prepared by the process comprising of following steps:

I) <u>Preparation of Ciprofloxacin Granules:</u>

a. Dissolving granulating agent in solvent, optionally mixing with diluents;
b. granulating 250 mg of Ciprofloxacin base with step (a) solution & air drying the granules at required temperature;
c. passing the dried granules through mesh size from #30 to #100;
d. preparing the coating solution by dissolving methacrylate copolymers in solvent ; and
e. loading the granules of step (c) in the FBC and coating the same with solution of step (d) to obtain Ciprofloxacin taste masked granules.

II) <u>Preparation of Ciprofloxacin dry syrup:</u>

a. mixing and sifting suspending agent, sweeteners, flavour, glidant, and lubricant through mesh size ranging between #30 to 100;
b. sifting buffering agent through mesh size #100 and mixing with step (a)
c. mixing ciprofloxacin taste masked granules of Part I with step (b);
d. sifting lubricant through mesh size ranging between #30 to 100 and mixing the same with step (c); and
e. packing into single dose sachet or multiple dose container.

Suitable granulating agents can be selected from Methacrylate copolymers, Hydroxy Propyl Methyl Cellulose (HPMC), Hydroxy Propyl Cellulose (HPC) and combinations thereof. The granulating agents are present in the range of 5-50% of quantity of Ciprofloxacin base.

Suitable Methacrylate copolymers may be selected from Eudragit EPO which is a cationic copolymer based on dimethylaminoethyl methacrylate and neutral methacrylic esters having characteristic white powder with an amine-like odour. In the present invention, Eudragit EPO is used in the range of 5-50 % of quantity of Ciprofloxacin base. HPMC and HPC of various grades, preferably 5cps to 15cps grade can be used as a granulating agent and in the range of 0-40% of quantity of Ciprofloxacin base.

Suitable solvent used is selected from Isopropyl alcohol (IPA), Alcohol, Methylene chloride, Water and combinations thereof. The ratio of granulating agents and solvent in the present invention is in the ratio of 1:1 to 1:7.

Optionally, other excipients such as microcrystalline cellulose, starch, Prosolve, Lactose etc are used while preparing the granules. The concentration of said excipients is in the range 0% to 15 % of the quantity of Ciprofloxacin base.

Suitable suspending agent is selected from the group of Xanthan gum, hypromellose, sodium CMC, hydroxy propyl cellulose, veegum, guar gum is in an amount of 0.1 to 0.5%.

Suitable sweeteners are selected from the group of Neotame, Sucrose, Xylitol, Aspartame, acesulfame potassium and mixtures thereof; present in an amount of 3 to10%.

Suitable flavor is selected from mix fruit powder flavor, orange, banana, pineapple, strawberry and the like and is present in an amount of 0.2 to 1%.

Suitable buffer used is Sodium citrate, citric acid, sodium phosphate, potassium phosphate in an amount of 0.2 to 1%.

Suitable glidant is selected from the group of Aerosil, talc, titanium dioxide in an amount of 0 to 0.1%.

Suitable lubricant is selected from the group of Magnesium stearate, calcium stearate and sodium stearyl fumarate in an amount of 0.05 to 0.2%. The said lubricant helps in filling the granules in a single dose or multiple doses.

The taste masked ciprofloxacin dry syrup composition of the present invention comprises of taste masked Ciprofloxacin base granules have particle size ranging from # 30 mesh to # 100 mesh; preferably from # 40 mesh to # 80 mesh i.e. 150 to 600 microns.

The instant invention is more specifically explained by following examples. However, it should be understood that the scope of the present invention is not limited by the examples in any manner. It will be appreciated by any person skilled in this art that the present invention includes following examples and further can be modified and altered within the technical scope of the present invention.

EXAMPLES:

Example 1: FORMULA FOR SINGLE DOSE SACHET

I) Ciprofloxacin Granules:

Sr. No.	Ingredients	mg/ ml	Specification	FUNCTION
	Part A Granulation			
1	Ciprofloxacin (Base) USP	50	USP	API
2	Microcrystalline Cellulose(Vivapur)	5.0	NF	Diluent
3	HPMC 15 cps	10.0	USP	Binder
4	Eudragit EPO	2.5	USP	Binder and Taste masking agent
5*	Isopropyl alcohol	Qs	USP	Solvent
6	Water	Qs		
	Total	**67.5**		
	Part B Coating			
7	Eudragit EPO	38.0	USP	Taste masking agent
	Talc	3.8		
8*	Isopropyl alcohol	qs	USP	Solvent
		109.3		

*Will not appear in final formulation

Procedure:

1. Mixing Ciprofloxacin, MCC101(Vivapur), HPMC and Eudragit EPO in RMG;
2. granulating the mixture of step 1 using IPA: Water (1:1) for obtaining granules;
3. drying the granules of step 3 at 50°C;
4. loss on drying (NMT-2.0%)
5. passing the dried granules through #40;
6. retaining granules of step 5 on #100;

Coating:

7. preparing coating solution by dissolving Eudragit EPO in IPA and
8. loading the granules in FBC and coating with solution of step 7 to obtain weight gain upto 70 to 72%.

The coating parameters are as follows.

1	Atomization Air	1.5 bar
2	Blower Speed	35 rpm
3	Inlet temperature	40°C
4	Bed temperature	35°C
5	Exhaust temperature	30°C
6	Peristaltic pump speed	5 rpm

II) <u>Ciprofloxacin Dry Syrup Preparation:</u>

Sr. No.	Ingredients	mg/ ml	Specification	FUNCTION
1	Ciprofloxacin TM granules	116	-	Taste masked granules
2	Xanthan gum	0.2	USP	Suspending Agent
3	Neotame	1.0	IH	Sweetener
4	Sucrose	10.0	USP	Sweetener
5	Aspartame	1.0	USP	Sweetener
6	Mix fruit powder flavor	1.0	IH	Flavour
7	Na-citrate (100 mesh)	1.0	USP	Buffer
8	Aerosil	0.1	USP	Glidant
9	Magnesium Stearate	0.2	USP	Lubricant

Procedure:

1. Sifting ingredient no. 2, 3, 4,5,6,8 and 9 through #40;
2. sifting ingredient no 7 through #100 and mixing the same with step 1;

3. mixing Ciprofloxacin TM Granules of Part-I with step 2;
4. sifting Magnesium Stearate through #60 and mixing with step 3 and
5. packing single dose sachet (600-700 mg dry syrup equivalent to 250mg ciprofloxacin)

Example 2: FORMULA FOR MULTIPLE DOSES

I) Ciprofloxacin Granules

Sr. No.	Ingredients	mg/ ml	g/100ml	Specification	FUNCTION
	Part A Granulation				
1	Ciprofloxacin (Base) USP	50	5.0	USP	API
2	Microcrystalline Cellulose (Vivapur)	5.0	0.5	NF	Diluent
3	HPMC 15 cps	10.0	1.0	USP	Binder
4	Eudragit EPO	2.5	0.25	USP	Binder and Taste masking agent
5*	Isopropyl alcohol	Qs	Qs	USP	Solvent
6	Water	Qs	Qs		
7	Total	**67.5**	6.75		
	Part B Coating				
8	Eudragit EPO	40.5	4.05	USP	Taste masking agent
9	Talc	8.1	0.81		
10*	Isopropyl alcohol	qs	qs	USP	Solvent
		116	11.6		

*Will not appear in final formulation

Procedure:

1. Mixing Ciprofloxacin, Microcrystalline Cellulose 101, HPMC and Eudragit EPO in RMG;
2. granulating the mixture of step 1 using IPA: Water (1:1);
3. drying the granules at 50°C;
4. loss on drying (NMT-2.0%);
5. passing the dried granules through #40;
6. retaining step 5 granules on #100;

Coating:

7. preparing coating solution by dissolving Eudragit EPO in IPA and
8. loading the granules in the FBC and coating the above solution to obtained weight gain upto 38.24%.

The coating parameters are as follows.

1	Atomization Air	1.5 bar
2	Blower Speed	35 rpm
3	Inlet temperature	40°C
4	Bed temperature	35°C
5	Exhaust temperature	30°C
6	Peristaltic pump speed	5 rpm

II) Ciprofloxacin Dry Syrup Preparation:

Sr. No.	Ingredients	mg/ ml	g/100ml	Specification	FUNCTION
1	Ciprofloxacin TM granules	116	11.6	-	Taste masked granules
2	Xanthan gum	0.2	0.02	USP	Suspending Agent
3	Neotame	1.0	0.1	IH	Sweetener
4	Sucrose	10.	1.0	USP	Sweetener
5	Aspartame	1.0	0.4	USP	Sweetener
6	Mix fruit powder flavor	1.0	0.1	IH	Flavour
7	Na-citrate (100 mesh)	1.0	0.1	USP	Buffer
8	Aerosil	0.1	0.01	USP	Glidant
9	Magnesium Stearate	0.2	0.02	USP	Lubricant
	Total	130.60	13.06		

Procedure:

1. Sifting ingredient no. 2, 3, 4,5,6,8 and 9 through #40;
2. sifting ingredient no. 7 through #100 and mixing with step 1;
3. mixing Ciprofloxacin TM Granules of Part I with step 2.
4. sifting Magnesium Stearate through #60 and mixing the same with step 3.
5. packing multiple dose in glass bottle (130.6 g dry syrup equivalent to 5.0 g ciprofloxacin)

III) Diluents for ciprofloxacin suspension:

Sr. No.	Ingredients	mg/ ml	g/100ml	Specification	FUNCTION
1	Glycerin	98.9	9.89	USP	Diluent
2	Sorbitol solution	998.7	99.87	USP	Diluent
3	Art Strawberry FLV F915527, FD01097	2.5	0.25	IH	Flavour

Procedure:

Mixing ingredient no. 1, 2, and 3 under stirring to prepare a suspension and dispersing ciprofloxacin dry syrup in said suspension of diluents and shake well.

Example 4: STABILITY DATA:

PRODUCT NAME: Ciprofloxacin for Oral Suspension
Strength: 250mg/5mL
Pack: Taste masked granules equivalent to 20 doses in amber colored glass bottle. Diluting fluid to reconstitute to 100 ml in HDPE bottle.
Storage Condition: 40°C/75%RH

TEST	Specifications	Initial	1 months	2 Months	3 Months
Description	White to Off-white granules suspended in diluting fluid	complies	complies	complies	complies
pH	Between 6.0 and 7.0	6.5	6.6	6.6	6.6
Dissolution % Ciprofloxacin	NLT 80%(Q) after 45 minutes in 0.05M Acetate buffer+0.25% SLS, pH4.5	86.4	87.5	88.0	87.8
Assay % ciprofloxacin	90 % to 110% of Labeled amount	99.8	100.0	99.5	99.4

AMENDED CLAIMS
received by the International Bureau on 02 July 2011 (02.07.2011)

We claim,

1. A stable taste masked dry syrup composition of ciprofloxacin comprising ciprofloxacin granules having particle size ranging from 150 to 600 microns wherein said granules are granulated with granulating agents selected from Eudragit EPO, HPMC, HPC and combinations and taste masking coating with Eudragit EPO alongwith at least one pharmaceutically acceptable excipient.
2. The stable taste masked dry syrup composition of ciprofloxacin as claimed in claim 1, wherein ciprofloxacin is in its base form incorporated in an amount of 250 mg.
3. The stable taste masked dry syrup composition of ciprofloxacin as claimed in claim 1, wherein said granulating agents are present in the range of 5-50 % of quantity of Ciprofloxacin base.
4. The stable taste masked dry syrup composition of ciprofloxacin as claimed in claim 1, wherein other excipients are selected from microcrystalline cellulose, starch, Prosolve and Lactose.
5. The taste masked ciprofloxacin dry syrup composition as claimed in claim 1, wherein said dry syrup is in the form of single dose sachet added to 100 ml to 150 ml of water prior to dispensing or consuming.
6. The taste masked ciprofloxacin dry syrup composition as claimed in claim 1, wherein said dry syrup is in the form of multiple dose diluted with diluting fluid supplied along with the taste masked granules.
7. The taste masked ciprofloxacin dry syrup composition as claimed in claim 1 and 6, wherein said diluting fluid comprises of at least one diluent selected from sorbitol solution, Glycerin, sucrose syrup, xylitol, malitol, propylene glycol, polyethylene glycol and combinations thereof mixed with flavour.
8. The stable taste masked dry syrup composition of ciprofloxacin as claimed in claim 1, is prepared by a process comprising steps of:

   (a) granulating the ciprofloxacin base with granulating agents and solvent;

   (b) coating the granules of step (a) with the coating solution of Methacrylate co-polymer in solvent to obtain taste masked ciprofloxacin granules;

(c) mixing taste masked ciprofloxacin granules of step (b) with suspending agent, sweeteners, flavour, glidant, lubricant and buffering agent to obtain dry syrup and

(d) packing the dry syrup of step (c) into single dose sachet or multiple dose container.

9. The process as claimed in claim 8, wherein said solvent is selected from Isopropyl alcohol (IPA), Alcohol, Methylene chloride, Water and combinations thereof.
10. The process as claimed in claim 8, wherein said suspending agent is selected from the group of Xanthan gum, hypromellose, sodium CMC, hydroxyl propyl cellulose, guar gum, veegum.
11. The process as claimed in claim 8, wherein said sweeteners are selected from Neotame, Sucrose, Xylitol, Aspartame, acesulfame potassium and mixtures thereof.
12. The process as claimed in claim 8, wherein said lubricant is selected from Magnesium stearate, calcium stearate and sodium stearyl fumarate.