International Journal of Pharmaceutical Research and Applications
Volume 8, Issue 1 Jan-Feb 2023, pp: 1246-1255 www.ijprajournal.com ISSN: 2249-7781

A Review on: effervescent tablet

Kalyani Waghchoure
DrvedprakashPatil pharmacy college Auragabad

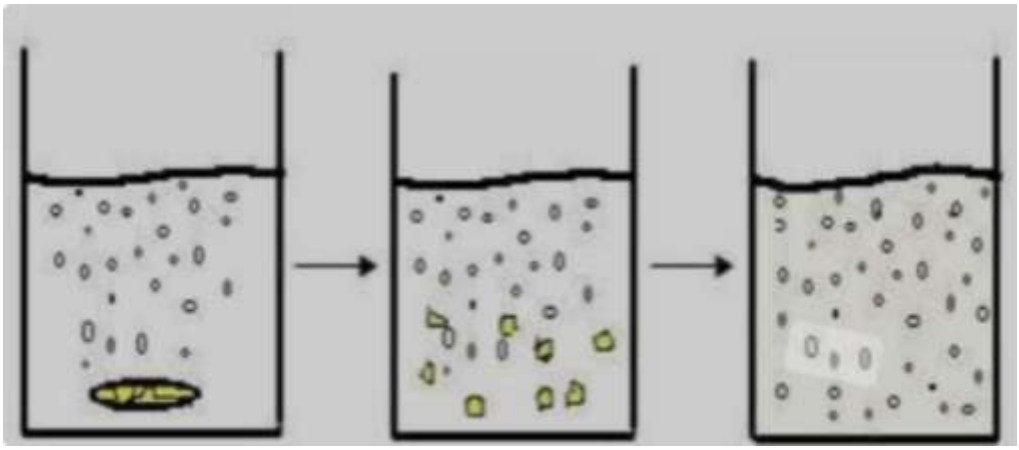
Submitted: 12-01-2023 Accepted: 25-01-2023

ABSTRACT :
Effervescent granules or tablets are unique dosage form havingdrug and Effervescent base which is composed of sodium hydrogen carbonate, citric acid and tartaric acid, these combination when added to water react to liberate co2, resulting in effervescence. These granules have a wild application in day to day life. Oral dosage form are the most popular way of taking medication, despite having some disadvantages compare with other methods like risk of flow absorption of the medicament, which can be overcome by administrating the drug in liquid form. therefore possibly allowing the use of all over dosage.

KEYWORDS : Effervescent tablet, sustained release, floating drug delivery system.

I. INTRODUCTION :

Granules are a unique type of dosage form which are composed of dried aggregates of powder solid particles which contain one or more Active Pharmaceutical Ingredients, with or without other ingredients [1] . effervescent is derived from a Latin word which means the escape of gas from an aqueous or water solution.[2] Effervescent tablets are becoming increasingly popular in a variety of sectors include supplement and pharmaceutical use, thanks to the convenience during which they will be consumed.



Effervescent tablet are designed to break in contact with liquid like water or juice, often causing the tablet to dissolve into solution. Effervescent means CO2 gas emission in reaction to acid and bicarbonate in the presence of H2O other common acidic used in citric, malic, tartaric, adipic and fumaric acids and bicarbonate uses in the effervescent reaction is sodium bicarbonate, potassium bicarbonate, sodium carbonate and potassium.[3] EFFERVESCENT FORMULA:

3NaHCO3(aq) + H3C6H5O7(aq) -----> 3H2O(aq) + 3CO2 + 3Na3C6H5O7(aq).

Moreover, since effervescent tablets are administered in liquid form, they are easily swallowed so they are preferred over tablets or capsule with a difficult consumption for some patient. On the other hand, one dose of effervescent tablet is often dissolved in a in 34 ounces of water. Being previously dissolved in a buffer solution, effervescent product do not get in direct contact with the gastro intestinal tract. They can thus be tolerated in stomach and intestine well due to reduced gastrointestinal irritation.[4-5]

ADVANTAGES :[6-9]

- Tablets introduced with bubbling have a predictable and reproducible pharmacokinetics profile that is a lot more consistent normal tablet .

International Journal of Pharmaceutical Research and Applications
Volume 8, Issue 1 Jan-Feb 2023, pp: 1246-1255 www.ijprajournal.com ISSN: 2249-7781

- Have a good stomach compatibility
- Fast on set action.
- Easy to transport.
- Improve palatability
- Good stability
- Enhance absorption
- Effervescent tablet avoids the first past metabolism
- Effervescent tablet can incorporate a high amount of active ingredient

DISADVANTAGES :[10-11]

- Cost is relatively high as compare
- Large tablet required special packaging material.
- May require more time for full dispersion.
- Should have a proper packaging to protect it from humidity and temperature.
- Unpleasant taste of some active ingredients.
- Relatively expensive to produce due to large amount of more or less expensive excipients and special production facilities. • Clear solution is preferred for administration although fine dispersion is now Universally acceptable.

METHODS Of GRANULATION PROCESS :

- **Wet granulation** [12]

Wet granulation despite some disadvantages, wet granulation remains foremost preferred method for effervescent granulation. Thiis method gives homogeneous granules for compression, and is in a position to produce uniform tablet either in term of weight or active ingredient content. Wet granulation method further may be divided into two types looking on the amount of process steps important steps involved within the wet granulation.

Drying of moist granules. mixing of binder solution with powder mixture to make wet mass. preparation of binder solution. mixing of the drugs and excipients of screened granules with disintegrate, gliding and lubricant.

- **Dry granulation** [13-20]

Dry Granulation does not involve the use of a solvent or a heat source Out of all methods of granulation this method is the least used. The two fundamental procedures are, firstly, to create a compact of fibric by compression and then milling the compact to get granules. Two methods are used for dry granulation. Slugging is the most generally used method, where the powder is recompressed and the resulting tablets or slug are milled to yield granules. An alternative method involves recompressing the powder with pressure rolls, the use of a machine like a Chilosonator.

Direct granulation: [21]

Granulation by slugging or roller compaction is suitable for materials that can't be wet graduated .slugs and therefore the material from the roller compactor are reduced to the right size. lubrication is usually necessary during slugging but not always will roller compaction. The acidic and basic component could also be dry granulated separated or together.

Roller compaction : [22-25]

Compression using pressure roll can be done with a machine called a chilsonator. Unlike a tablet machine, a chilsonator turns out to be weight combined with continuous flow . The Powder is fed between the roller from the hopper which contains a spiral auger feeding powder composition area . Like slug aggregate are screened for production into granules.

ADVANCEMENT IN GRANULATION :

- **Steam granulation:**[26-27]

It is a modification of wet granulation. Here steam is used as a binding agent instead of water. Its several benefits include high uniform distribution, high distribution rate into powders. Good favorable heat balance during drying step, steam granules are rounded on top, have a large surface area so increased dissolution rate of the drug from gramiles, the processing time is shorter and therefore more number of tablets produced per set, compared with the use of organic solvent vapor water is nature friendly, no health risks to operators, no restrictions by ICH in the tracks left on the granules, the steam is free of any contamination sterile therefore the total value can be kept in control. Low dissolution rates can be used for the preparation of flavor granules without modification of drug availability

- **Melt granulation :** [28-29]

In this process, granulation is achieved by using a mouldable binder. The binder is in a solid state at room temperature but melts in the temperature range of 50 80°C. This Melted binder then acts as a binding liquid. In this process, there is no need for a drying phase since dried granules are obtained by cooling them to room temperature.

International Journal of Pharmaceutical Research and Applications
Volume 8, Issue 1 Jan-Feb 2023, pp: 1246-1255 www.ijprajournal.com ISSN: 2249-7781

- **High shear granulator:**[30]

This is the foremost common configuration used on an industrial scale for the assembly of pharmaceutical granules. Again, this technique allow falls integration with upstream and downstream equipments, and even includes a wet mall between the granulater and dryer. With modern control system, it's easy to load, mix and gramalate a second batch within the Ingh shear granulator whilst drying the pervous batch within the fluid bed before dacharge. All equipment may be cleaned in situ in a very single automatic process

- **Fluid bed granulation :** [31]

The production of effervescent granules which will be accustomed prepare effervescent tablets was accomplished ung fluidized bed granulan A dry mixture of the powdered sort of an acid and carbonate source is suspended in a very stream of hot air, forming a constantly antated, fluidized bed. An amount of granulating flad, usually water, is introduced in a very finely dispersed form caning momentary reaction before its vaporized. This causes the ingredients to react to a limited extent forming single granules of the 2 reactive components. The grades we larger than the powder particles of the starting materials and stable for compression into tablets after drving has been completed within the Fluidize bed apparatus. The procedure has the advantage of ingredient moxing, granulating, and drying dead one piece of kit with minimal lows of Carbonic acid gas.

FORMULATION : [32]

In addition to active ingredient, it generally contain a mixture of acids, acidsalt, carbonate and hydrogen carbonate that religious with water.

Drugs that are formulated as effervescent tablet

- Difficult to digest or stomach disrupting drugs.
  - When calcium carbonate is taken in effervescent granulation, the calcium dissolved in water is readily available for the body to absorb, and there is no risk of excessive gas in the stomach or constipation due to a lower level of acid in the stomach .
- pH sensitive drugs, such as amino acid and antibodies oThe effervescent granulation can buffer the water active solutions such that the stomach pH improve, prevooenting the destruction on inactivation of the active ingredients caused by lower stomach pH
- Drugs that require a large dose.
  - A single dose of a standard effervescent tablet (1 inch in diameter 5 gram total weight) can contain more than 2 gram of water soluble active in components. if the desired dose is higher, the sachet (powder form) is the usual administration method.

EXCIPIENTS : [33-37]

- **Lubricants :** [33]

An ideal lubricant for effervescent products must be nontoxic, tasteless and water soluble a mix of 4% polyethylene glycol 6000 and 0.1% sodium stearly fumarate proved to be a decent lubricant for vitamin C tablets made by direct compression on a little scale. common salt, sodium acetate and the D,L-leucine have been suggested for effervescent tablets. Very low concentration of metal States. surfactant like sodium lauryl sulphate and magnesium lauryl sulphate also act as lubricant.

- **Binders :**

As binders prevent rapid a dissolution off the bubbling tablets usually not used. but effervescent granules is also formulated with binders. an effervescent granulation composed of anhydrous acid and NaHCO3 was made with dehydrated alcohol because the granulating liliquids. A little of the acid dissolve during the massing and functional as a binder 4maltitol was an acceptable binder for vitamin C effervescent tablets. formulation of crystal bridge of maltitol was the assumed binding mechanism.

- **Antiadherents:**

Granules Adherence is avoided by utilising discs made of polytetrafluoroethylene no ethylene or polyurethane.

- **Disintegrate or dissolution aids:**

Disintegrant are selected specified or transparent solution should be obtained within some minute after adding the tablet to a glass of cold water.

- **Antifoaming agent:**

Reduce the production of foam and as result the tendency of medication to stick to the glass wall above the water level. antifoaming agent polydimethylsiloxane is used.

International Journal of Pharmaceutical Research and Applications
Volume 8, Issue 1 Jan-Feb 2023, pp: 1246-1255 www.ijprajournal.com ISSN: 2249-7781

- **Surfactants:**

Surfactant want to increase the wetting and dissolution rates of medicine.

- **Sweeteners**

Sweeteners like sucrose, saccharin and others natural sweeteners were used .

- **Flavours:**

Flavours are used to provide sweetneres and additive effect, masking the disagreeable taste.

- **Colours:**

To achieve a better appearance, water soluble colour might be used.

GENERAL MANUFACTURING PROCESS FOR EFFERVESCENTPRODUCTS RAW MATERIALS :

The effervescent formulation mainly consists of three components-

- Active ingredient
- Acids sources
- Alkaline compound, constituted by a carbonate or bicarbonate.

Acid sources	Alkali sources
Citric acid, tartaric acid, Fumaric acid, Adipic acid, Malic acid, Ascorbic acid, Acid citrate salts.	Sodium bicarbonate , potassium carbonate, calcium carbonate, sodium carbonate

Lubricants	Other agents
Sodium benzoate, sodium acetate, Fumaric acid, polyethylene glycol (PGE) Higher than 4000, Alanine And Glycine	Binders, Glidants, Disintegrate, Anti adherents, sweetneres, Flavours, Colors, Surfactants.

Evaluation:

A] Evaluation of precompression :

- **Angel of repose** [38]

It Was measured by fixed funnel method. The fixed funnel method employ a funnel that was secured with its tip at a given height „h", above graph paper that was placed on a flat horizontal surface. Granules were carefully poured through the funnel until the apex of the conical pile just touches the tip of the funnel. Thus, with „r" being the radius of the base of the conical pile.

tan θ = h / r

- **Bulk density** [39]

An accurately weighed sample of granulation was carefully added to the measuring cylinder with the aid of funnel. The level was observed without compacting and noted as apparent volume (V0).14,15 The bulk density was calculated by the formula as given below:

Bulk density=M/ V0

- **Tapped density** [40]

After bulk density measurement the cylinder was placed on the tapped density tester (ETD 1060, Electrolab) and was mechanically tapped. The cylinder was tapped for 500 times initially and the tapped volume (V1) was measured to the nearest graduated units. The tapping was repeated for additional 750 times and the tapped volume (V2) nearest to graduated units was noted.15 The tappe density was calculated by the formula as given below:

Tapped density= M/V0

- **Carr's Index** [41]

The percentage compressibility of a powder is direct measure of the potential of powder arch or bridge strength is calculated according to the equation given below:

% compressibility =

$$\frac{\text{Tapped density} - \text{bulk density}}{\text{Tapped density}} \times 100$$

- **Hausner's ratio** [42]

Hausner's ratio is an important character to determine the flow property of powder and granules. This can be calculation by the following formula:

$$\text{Hausner's ratio} = \frac{\text{Tapped density}}{\text{Bulk density}}$$

B] Evaluation of postcompression :

• **Weight variation** [43]

20 effervescent tablet as selected randomly and weight individually. The average weight and standard deviation of all 20 effervescent tablet are calculated.

International Journal of Pharmaceutical Research and Applications
Volume 8, Issue 1 Jan-Feb 2023, pp: 1246-1255 www.ijprajournal.com ISSN: 2249-7781

- **Friability test** [44]

Friability test of the tablets make up my mind using friabilator. It subjected the tablets to be combined abrasion and shock in a very plastic chamber revolving at 25 rpm for 4 minute and dropping a tablet at height of 6 inches in evolution. The tablets were reweighed .
Tablets de-dusted employing a smooth Muslin cloth and reweighed. The proportion of the tablet friability was calculated as. The desirable friability make up my mind as below 1%.

$$= \frac{\text{Initial weight} - \text{final weight}}{\text{Initial weight}} \times 100$$

- **Hardness Test** [45]

The force required to break down a tablet in a compression is defined as the hardness or Crushing strength of a tablet. In this study 10 tablets were randomly selected and individually place in a hardness tester and then the hardness of tablet reported in N.

- **CO2 content** [46]

Three tablets were placed in 100 ml of oil of vitriol solution 1N in separate breakers. so as to work out the quantity of Release co2 the difference in weight before and after dissolving the tablet was calculated.

- **pH of the solution** [47] pH of the solution can be determine using a pH meter . Dissolve tablet into 200 ml of water at 21+_1°c after immediate resolution check the pH.

- **Moisture content** [48]

10 tablets were taken and weighted and are put in a desiccator for 4 hour and are weight after again removing, the difference between the weight weighted before and after give us the moisture content
moisture content of 0.5% or less is applicable

Application :[49-51]

- Better stability and easy transporting.
- Alternative to parenteral forms, where administration through parentral route is difficult.
- Zero order release is achieved by incorporation of low levels of effervescent mixture with within the tablet matrix.
- It's helpful in pulsatile system; a fast releasing core was formulated so as to get rapid drug release after the rupture of the polymer coating.
- The concentration of effervescent agent significantly affected the floating time in floating drug delivery system.
- Programmed drug delivery is achieved.
- Cosmetic effervescent tablet were available.
- Effervescent preparations may enhance absorption and speed up onset of action by increasing gastric pH, therefore hastening the emptying of medication into the small intestine.
- The carbon dioxide bubbles may also help intestinal absorption by opening up paracellular transport
- Extreme bioavailability differences of up to 4-fold have been reported comparing effervescent tablets with ordinary tablets, highlighting the need for extra bioequivalence studies when switching dosage forms.
- It is dangerous to swallow an effervescent tablet directly, as the tablet can get stuck in the subglottis and fizzle there. A potentially fatal edema may occur from the irritation.
- In addition, conventional effervescent tablets contain a significant amount of sodium and are associated with increased odds of adverse cardiovascular events according to an 2013 study. Low or nosodium formulations exist.

International Journal of Pharmaceutical Research and Applications
Volume 8, Issue 1 Jan-Feb 2023, pp: 1246-1255 www.ijprajournal.com ISSN: 2249-7781

MARKETED PRODUCTS :

Brand name	Drug	Dosage form	Uses	Company
TruecofET	N-acetyl cysterine	Tablets	Respiratory & Lungs	Pharma biological
C-DOUXE	Ascorbic acid	Tablets	Skin care	DOUX healthcare
ALKA-SELTZER	Citric acid, Aspirin	Tablets	Antacid	ELKHART
Rantidine	Rantidine	Tablets	Antihistamine	Medicine & healthcare
NACSYS	Acetylcysteine	Tablets	Mucolytic in respiratory disorder	ALTURIX Ltd
Alum care	Aluminium hydroxide	Tablets	Heartburn	Adva care pharma
Magcare	Magnesium trisiclicate	Tablets	Indigestion	Adva care pharma
Maalox nausea	Metaclopramidecloridrato	Tablets	Stomach upset heartburn	SANOFI
Micoba-PG	Pregabaline	Tablets	Epilepsy, anxiety	Pfizer
Effer-Nopain	Budesonide	Tablets	Stomach pain	T&T pharmcare
Domeboro	Aluminium acetate	Powder	Antiseptic agent	Healthcare

International Journal of Pharmaceutical Research and Applications
Volume 8, Issue 1 Jan-Feb 2023, pp: 1246-1255 www.ijprajournal.com ISSN: 2249-7781

Aspirin -C	Salicylic acid	Tablets	Relive pain, fever	Welfare pharmacy
Gelling	Gluconate calcium	Tablets	Increase calcium level	Melbourne food ing redientsdepost
EFFER-K	Potassium	Tablets	Increase potassium	Nomad inc

Emprogest Ev	Progesterone	Tablets	Use in vagina	Emcure
Aspirin	Acetyl salicylic acid	Tablets	Antiinflammat ory	Well pharma
Berocca	5i-hydroxy-triptophan	Tablets	Vit deficiency	BAYER
ENO	Citric acid	Powder	Antacid	Halean
Asthalin -4	Salbutamol	Tablets	Asthama	Cipla
GLOPAR -C	Paracetamol& caffeine	Tablets skin	Analgesic, Antipyretic	Glury healthcare
Domeboro	Aluminium acetate	Powder	Skin infection	Advantic health
FURAGYL -M	Metronidazole	Tablets	Skin infection	Health Life
Calpol-650	Paracetamol	Tablets	Treat pain reduce temp	, Phillips
Abbott	Vit - C	Tablets	Treat cold	Limcee

International Journal of Pharmaceutical Research and Applications
Volume 8, Issue 1 Jan-Feb 2023, pp: 1246-1255 www.ijprajournal.com ISSN: 2249-7781

Calcium sandoz	Calcium carbonate	Tablets	Relieve heartburn	Forte
Epieff Z	Sodium bicarbonate	Tablets	To acid indigestion	Medikarb
K-lyte	Citric acid	Tablets	Antacid	Butt Grocery company
Disprin	Calcium carbonate, citric acid	Tablets	Headache, fever, cold	Pharmaeasy
Poridone	Paracetamol	Tablets	Cold, Flu	Divine saviourpvt. Ltd
Diclofenac	Paracetamol	Tablets	Mild pain	India MART

II. CONCLUSION:

effervescent formulation produces quicker action. Effervescent tablets are prepared by Dry method, Wet method and Compression, in which Wet method is the most widely used for formulation of Effervescent Granules. Effervescent granules are prepared by Wet method, Fusion method or dry method, hot melt method, inwhich the Fusion method is the important method the formulation of effervescent Granules.

REFERENCE :

[1]. PatelKumar D, Waghmode AP, Dhabale AS. Solubility enhancement of ibuprofen usingHydrotropicagents.Int J Pharm Life Sci 2011;2:542-2 Srinath KR, Chowdary CP, PalanisamyP,Vamsy KA, Aparna S, Ali SS, et al.

[2]. Satapathy SR, M, Patnaik M. Process and Variation in effervescent formulation: A review. InnovInt J Med Pharm Sci 2016;1:1

[3]. Prabhakar C, Krishna KB. A review on effervesent tablets. Int J Pharm Technol. 2011;3:704–12.

[4]. Palanisamy P, Abhishekh R, Yoganand Kumar D. Formulation and evaluation of effervescent tablets of aceclofenac. Int Res J Pharm. 2011;2(12):185–90. [Google Scholar]

[5]. Srinath KR, Chowdary CP, Palanisamy P, Krishna AV, Aparna S. et al. Formulation and evaluation of effervescent tablets of paracetamol. Int J

[6]. Pharm Res Dev. 2011;3(3):76–104. [Google Scholar]

[7]. K. Bala Krishna, "A Review on Effervescent Tablets",

[8]. International Joumal of Pharmacy & Technology, March,

[9]. 2011;3(1) 704-712

[10]. R.E.Lee, "Effervescent Tablets Key Facts about a Unique, Effective Dosage Form",CSC Publishing, 14Tablets &capsule;CSC Publishing; 1-4.

[11]. M. Shah, "Effervescent Tablets", Do You Know In June 2010.

[12]. S.B. Shursand, "Formulation Design and Optimization of Fast Disintegrating Lomzepam Tablets by "Effervescent Method ",an Indian

[13]. Journal of Pharmaceutical Sciences, Jul-Aug, 2010; 72(4) 431-436

[14]. H. Stahl "Effervescent Dosage", Pharmaceutical Technology Europe Magazme, April 2003, 25-28
[15]. S. Shahi, "Effervescent Tablet: A Review", Journal of Medical and Pharmaceutical Innovation, 4.22-2017
[16]. Radha Rani, KomalMasoan, sherry, "A recent updated Review on effervescent sTablet" International Journal of Creative Research Thoughts,2020, Vol – 8, ISSN 2320- 2882
[17]. Obara T, Prevalence, Determinants, and Reasons for the NonReporting of Adverse Drug Reactions by Pharmacists in the Miyagi and Hokkaido Regions of Japan, Advance Pharmacoepidemiology and Drug Safety, 2015; 4:191.
[18]. Teoh BC, et al. Perceptions of Doctors and Pharmacists towards Medication Error Reporting and Prevention in Kedah, Malaysia: A Rasch Model Analysis. AdvPharmacoepidemiol Drug Saf 2015; 4:192
[19]. United States Pharmacopeia 31/National Formulary 26. Rockville MD USA: United States Pharmacopeial Convention; 2008.
[20]. Yanze FM, Duru C, Jacob M, A process to produce effervescent tablets: Fluidized bed dryer melt granulation. Drug Development & Industrial Pharmacy, 2000, 26(11):1167-76.
[21]. Simona B, Tanja R, Using different experimental designs in drug excipient Compatibility Studies During the Preformulation development of a stable solid dosage formulation, ActaChimica Slovenica,2010; 57:895-903.
[22]. Larry LA and Stephan WH, Pharmaceutical Dosage Form: Tablets 3rd edition Vol. 1: 465.
[23]. Aboud HM, Elbary A, Ali AA, Enhanced dissolution of meloxicam from orodispersible tablets prepared by different methods, Bulletin of Faculty of Pharmacy, Cairo University, 2012;50:89-97
[24]. Ahmed I, Aboul-Einien M, In vitro and in viva Evaluation of a fast disintegrating lyophilized dry emulsion tablet containing griseofulvin, Europeans Journal of Pharmaceutical Sciences. 2007; 32:58-68
[25]. Ahmed I, AboulEmen M, In vitro and in vivo evaluation of a fast disintegrating lyophilized dry emulsiontabletcontaminggriseofulvin,
[26]. European Journal of Pharmaceutical Sciences. 2007;32-58-68 33]
[27]. Dhakar RC, Maurya SD, Dang G, Kumar G. Gupta M, Kiroriwal S, Buccal Adhesive Dosage Forms As A NISDD A Pharmaceutical Review, Research Pharmaceutica, 2010, 1(1) 46-59
[28]. Aly AM, Amro BI, Hajji FD. Preparation and Evaluation of Rapidly Disintegrating Ginnepride Tablets. International Joumal of Pharmaceutical
[29]. Sciences and Nanotechnology 2011 3(4) 1220-1229
[30]. Ashish P. Harsolya MS, Pathan JK Shruti S. A Review Formulation of Mouth Dissolving tabletInternational Journal of PharmaceuticalandClmical Science, 2011 1(1) 1-8
[31]. Sandhyaran G. Kumar KP, Formulation and evaluation of fast dissolvmg Tablet of unidapril. Indian Journal of Pharmaceutical Science& Research 2017 4(3) 147-150.
[32]. Dhakar RC, Maurya SD, Gupta AK Siddiqui AW. Interpenetrating polymene network hydrogel for stomachspecific drug delivery of clanthromycin Preparation and evaluation Asian Joumal of
[33]. Pharmaceutics,2010;4(4) 184 189.
[34]. Dhakar RC Maurya SD, Aggarwal S, Kumar G. Tilak VK. Design and evaluation of SRM microspheres of Metformhydrochlonde,
[35]. PharmacieGlobale(LICP), 2010: 1(07) 1-6
[36]. Dhakar RC, Maurya SD. Sagar BPS, Prajapati SK, Jam CP. Variables influencing the drug entmpment efficiency of microspheres a pharmaceuticalreview Der Pharmacia Lettre 2010 (5) 102-116.
[37]. Sastry SV, Nyshdham JR. Fix JA. Recent technological advances in oral drug delivery A review Pharmaceutical Science and Technology Today. 2000; 1(3) 38-45
[38]. Radha Rani, KomalMasoan, sherry, "A recent updated Review on effervescent tablet" International Journal of creative Research Thoughts,2020, Vol – 8, ISSN 2320- 2882
[39]. Shinde Kailas Anil, ShindaSonal, Hamanevikas, A Review on Effervescent Tablet International Research journal of

Modernization in Engineering Technology and Science. 2022;Vol 4, ISSN: 2582-5208

[40]. 32.Radha Rani, KomalMasoan, sherry, "A recent updated Review on effervescent tablet" International Journal of Creative Research Thoughts,2020, Vol – 8, ISSN 2320- 2882 https://www.irjmets.com/uploadedfiles/paper/issue_1november_2022/31841/final/fin_irjmets1669988938.pdf

[41]. Biswas D and Halquist M, Using Biorelevant in Vitro Models testing to characterize release of non oral dosage form as another tool for safety. Journal of pharmacovigilance, 2016; 4:153-160.

[42]. Patrick J Crowley, Luigi G Martini" excipients for pharmaceutical dosage forms" Encyclopedia of pharmaceutical technology 02 oct 2006.

[43]. Available at www.informaworld.com.

[44]. Banker GS Anderson NR In Lachman. Leon, Libennan H A. Kng JL, Eds The theory and Practice of industnal pharmacy, 3rdEdn, Varghese Publishing House. Mumbai, 297-300(1987)

[45]. M.E. Aulton, "Phramaceutics- The Science of Dosage form Design", 2nd ed. Churchill livingstone Publication; P. 205-208.

[46]. P. Palanisamy, "Formulation and Evaluation of Effervescent Tablet of

[47]. Aceclofenac", International Research Journal of Pharmacy, 2011, 2(12), 185-190.

[48]. . A. Patidar, "A Review on- Recent Advancement in The Development of Rapid Disintegrating Tablet", International Journal of Life Science & Pharma Research, 2011, Vol. 1,Issue 1. 7-16.

[49]. P. Palanisamy, "Formulation and Evaluation of Effervescent Tablet of Aceclofenac", International Research Journal of Pharmacy, 2011, 2(12), 185-190.

[50]. Patil MG, Kakade SM. Pathade SG Formulation and evaluation of orally disintegrating tablet containing tramadol HCL by mass extrusion technique. J Appl Pharm Sci 2011.1(6):178-81. 15.

[51]. Evaluation in healthy human volunteers. Eur J Pharm Biopharm 2010:74(2):332-9. 18. Masareddy R. Yellanki SK, Patil BR. Manvi V. Development and evaluation of floating matrix

[52]. Lachman L, Lieberman HA. Kanig JI.. The Theory and Practice of Industrial Pharmacy. 3rded.MumbaiVargheese Publishing House; 1991.

[53]. Aslani,"Formulation characterizations nd Physicochemical Evaluation of

[54]. Potassium Citrate Effervescent Tablets". Advanced Pharmaceutical Bulletin. 2013, 3(1), 217-225.

[55]. Masareddy R. Yellanki SK, Patil BR. Manvi V. Development and evaluation of floating matrix tablets of riboflavin, Int J PharmTech Res 2010, 2(2):1439-45

[56]. Prajapati ST, Patel LD, Patel DM. Gastric floating matrix tablets: design and optimization using combination of polymers. Acta Pharm 2008;58(2):221-9.

[57]. Patel Salim G1*, SiddaiahM2 Formulation and evaluation of effervescent tablets: a review. Online on 15.11.2018 at http://jddtonline.info, 2018; 8(6):296-303..

[58]. Nagar P. Singh K. Chauhan 1. Verma M. Yasir M. Orally disintegrating tablets: Formulation, preparations Techniques ation. Appl Pharm Sci 2011:1(4):354

[59]. Patil MG, Kakade SM, Patliade SG. Formulation and evaluation of orally disintegrating tablet containing Tramadol HCL by mass extrusion technique, 1 Appl Pharm Sci 2011:1(6):178-81.

[60]. United States Pharmacopeia and National Formulary, 29th ed. Rockville, MD. USA: United States Pharmacopetal Convention; 2006