Publications Template

#	Research Title	Field	Abstract	Year of Publication Publishing	Publishing Link "URL"
1	A novel nasal almotriptan loaded solid lipid nanoparticles in mucoadhesive in situ gel formulation for brain targeting: Preparation, characterization and in vivo evaluation. International Journal of Pharmaceutics, 548 (2018) 609–624.	Pharmaceutics	This work aimed at designing efficient safe delivery system for intranasal (IN) brain targeting of the water soluble anti- migraine drug Almotriptan malate (ALM). Solid lipid nanoparticles (SLNs) were prepared by w/o/w double emulsion-solvent evaporation method. Selection of the optimized SLNs formula was based on evaluating particle size (PS), poly dispersity index (PDI) and entrapment efficiency (%EE). Optimized formula exhibited acceptable ranges; PS of 207.9 nm, PDI of 0.41 and %EE of 50.81%. Poloxamer 407 (Plx) at different concentrations (16%, 18%, 20% w/v), with different mucoadhesive polymers (Carbopol-974P, Na alginate, Na-CMC) were evaluated for gelling time and temperature, pH and mucoadhesion. The chosen mucoadhesive in-situ gel formula; 18% Plx 407 based-0.75%w/v Na-CMC, showed acceptable results, so that the optimized SLNs formula was further dispersed in it and evaluated for in vitro	2018	https://doi.org/10.1016/j.ijpharm.2018.07.014

			release, stability, in vivo and pharmacokinetics studies. Biomarkers' evaluation and histopathological examination were also investigated. Results revealed rapid ALM brain delivery of the optimized formula; Brain/blood ratios at 10 min. for NF (SLNs based IN in-situ gel), ND (Free ALM IN in situ gel) and ALM i.v. (ALM IV solution) were 0.89, 0.19 and 0.31, respectively. Toxicological results confirmed the safety of NF for nasal administration. The achieved out comings are encouraging for further clinical trials of the developed system in humans in future research.		
2	Topical Simvastatin Gel as a Novel Therapeutic Modality for Palatal Donor Site Wound Healing following Free Gingival Graft Procedure. Acta Odontologica Scandinavica. 76 (3) 212-219.	Dentistry	**Objective:** Autogenous soft-tissue grafting is a commonly used procedure nowadays in dentistry. However, the prolonged healing time needed for the donor site leads to increase the patient's pain and discomfort. Statin has been observed to be beneficial in reducing bacterial burden, improving epithelization and wound healing. The aim of this study was to evaluate intra-oral topical application of simvastatin/chitosan gel (10 mg/mL) over the palatal donor site following free gingival graft (FGG) procedure.	2018	https://doi.org/10.1080/00016357.2017.1403648

			Material and methods: Subjects indicated for FGG procedure were divided into four groups. Group I: Simvastatin suspension (S), group II: simvastatin/chitosan gel (SC), group III: chitosan gel (C), group IV: petroleum gel (P). Treatment was applied three times/day for the following 7 days. Wound healing was evaluated at day 3, 7 and 14 post-surgery. A visual analogue scale (VAS) was used to measure the experienced discomfort at 1, 3, 5, 7 and 14 days. **Results:** Statistical significant reduction in wound-healing scores was observed after 3 and 7 days for group II compared to other groups (p = .015). A significant reduction was also observed in VAS score for group II compared to other groups at day 1, 3, 5 and 7. **Conclusion:** Topical application of S/C gel could be used as a novel therapeutic modality that improved healing and reduced pain in the palatal donor site following FGG procedure.		
3	Platform for Lipid Based Nanocarriers' Formulation	Pharmaceutics	*BACKGROUND:* Lipid based nanocarriers have gained recently enormous interest for pharmaceutical application.	2017	DOI: 10.2174/1381612824666171128104814

	Components and their Potential Effects: A Literature Review. Current Pharmaceutical Design, 23 (43) 6613-6629.		They have the potential to provide controlled drug release and to target the drug to a specific area. In addition, lipid based nanocarriers can improve the bioavailability of drugs suffering from high hepatic first-pass metabolism, by enhancing their transport via the lymphatic system. The main components of lipid based nanocarriers are lipids and surfactants. Both have great influence on the prepared lipid based systems characteristics. The criteria for their selection are much related to physicochemical properties of the drug and the required administration route. This work gives an overview on the effect of both the type and amount of lipids and surfactants used in the manufacture of lipid based nanocarriers on their behavior and characteristics. *CONCLUSION:* Recent studies revealed that the properties of the final product including; particle size, homogeneity, drug loading capacity, zeta potential, drug release profile, stability, permeability, pharmacokinetic properties, crystallinity and cytotoxicity, may be significantly influenced not only by the type but also the amount of the lipids and/or surfactants included in the formulation of the lipid based nanocarriers.		

4	Flash Dissolving Sublingual Almotriptan Malate Lyotabs For Management Of Migraine. International Journal of Pharmacy and Pharmaceutical Sciences, 9 (1) 125-131.	Pharmaceutics	**Objective:** Development of sublingual fast dissolving lyophilized almotriptan tablets, to enhance its pre-gastric absorption and so alleviating the gastrointestinal dysmotility that is commonly associated with migraineurs. **Methods:** Primary almotriptan lyophilized tablets (Alm-lyotab), were prepared using polyvinyl alcohol (PVA), polyvinyl pyrrolidone (PVP), gelatin, or sodium alginate, as a bulk forming agent and mannitol as a disintegrant, cryoprotectant and taste improver. Physical properties, wetting time, *in vitro* dissolution and disintegration behaviour, were investigated. A combination of PVP, gelatin and chitosan in different ratios with mannitol were developed and characterised for further improvement. Optimised formula was examined by scanning electron microscope (SEM), differential scanning calorimetry (DSC) and Fourier-transform infrared spectroscopy (FTIR). **Results:** Both PVP and gelatin primary formulations showed elegant appearance with fast *in vitro* disintegration time of 5.67 and 5.64 sec, short wetting time of 4.06 and 4.05 sec, respectively, and high *in vitro* release rate of about 80% after 1 min,	2017	DOI: http://dx.doi.org/10.22159/ijpps.2017v9i1.15489

			thus they were selected for further improvement. Optimised formula from polymer blend formulations (F8) which consisted of PVP: gelatin: chitosan in a ratio of its constituting solutions of 1:5:0.5, exhibited an elegant appearance, drug content of 98.75 %, *in vivo* disintegration time of 1.85 sec and complete drug release within 1 min. SEM micrographs revealed spongy, highly porous structure. DSC results indicated the presence of the drug in its crystalline form. FTIR studies revealed no interaction between the drug and excipients. **Conclusion:** Sublingual instantly dissolving Almo-lyotab was successfully developed and may constitute an advance in the management of acute migraine attacks.		

5	Thiolated Alginate-Based Multiple layers Mucoadhesive Films of Metformin for Intra Pocket Local Delivery: *In –vitro* Characterization and Clinical Assessment. Drug Development and industrial Pharmacy, 43 (1) 120–131.	Pharmaceutics	**Introduction:** Periodontal disease broadly defines group of conditions in which the supportive structure of the tooth (periodontium) is destroyed. Recent studies suggested that the anti-diabetic drug metformin hydrochloride (MF) has an osteogenic effect and is beneficial for the management of periodontitis. **Objective:** Development of strong mucoadhesive multiple layer film loading small dose of MF for intra-pocket application. **Methodology:** Multiple layer film was developed by double casting followed by compression method. Either 6% carboxy methyl cellulose sodium (CMC) or sodium alginate (ALG) constituted the inner drug (0.6%) loaded layer. Thiolated sodium alginate (TSA; 2 or 4%) constituted the outer drug free layers to enhance mucoadhesion and achieve controlled drug release. Optimized formulation was assessed clinically on 20 subjects. **Results:** Films were uniform, thin and hard enough for easy insertion into periodontal pockets. Based on water uptake and *in vitro* drug release, CMC	2017	DOI:10.1080/03639045.2016.1224895

			based film with 4% TSA as an outer layer was the optimized formulation with enhanced mucoadhesion and controlled drug release (83.73% over 12 h). SEM showed the effective fabrication of the triple layer film in which connective lines between the layers could be observed. FTIR examination suggests possibility of hydrogen bonding between the –NH groups of metformin and –OH groups of CMC. DSC revealed the presence of MF mainly in the amorphous form. Clinical results indicated improvement of all clinical parameters six months post treatment. **Conclusion:** The results suggested that local application of the mucoadhesive multiple layer films loaded with metformin hydrochloride was able to manage moderate chronic periodontitis.		
6	Clinical and Radiographic Assessment of the Adjunctive Intra-Pocket Application of Triple-Layer Mucoadhesive Metformin Film in	Dentistry	Background : Recent studies suggest that metformin (MF) is osteogenic. Aim: The assessment of the effect of a muco-adhesive, multiple layer film of MF in intra-pocket application in non-surgical management of moderate –severe chronic periodontitis. Materials and Methods: The study included 20 patients with moderate –severe chronic periodontitis. Scaling and root planing (SRP) were	2016	DOI: 10.9790/0853-15120194100

	Non-Surgical Management of Chronic Periodontitis. IOSR Journal of Dental and Medical Sciences (IOSR-JDMS), 15 (12) 94-100.		performed in all patients. Selected sites were randomly assigned to different treatment modalities. Group I: 10 sites managed by SRP and placebo, (control site) Group II: 10 sites managed by SRP plus metformin film (test site). Clinical parameters including site specific bleeding on probing (BOP), probing depth (PD) and clinical attachment level (CAL) were recorded at baseline, 3 and 6 months after treatment. Radiographic intrabony defect depth (IBD) and bone density (BD) were evaluated at baseline and 6 months post treatment. Results: Mean PD reduction and CAL gain were found to be statistically higher in test group than placebo. Moreover, a significantly higher reduction of mean IBD depth and increase of BD were observed in the MF group. Conclusion: The results suggest that local application of films loaded with MF is useful in non –surgical management of cases of moderate to severe chronic periodontitis.		
7	Formulation Approaches of Triptans for Management of Migraine. Current	Pharmaceutics	Background: The use of triptans in the treatment of migraine was a breakthrough. Their selective agonistic action at serotonin (5-hydroxytryptamine) receptors has provided insights into the pathophysiology of migraine and represented a significant advance in migraine pharmacotherapy.	2016	DOI:10.2174/1567201813666160425112600

	Drug Delivery, 13 (6) 882- 898.		Sumatriptan was the first synthesized triptan available for clinical use in the United States. Although it revolutionized the treatment of migraine, it demonstrated some drawbacks, e.g. poor oral bioavailability, erratic absorption, and high rate of headache recurrence. New triptans have been developed namely; almotriptan, zolmitriptan, rizatriptan, eletriptan, frovatriptan and naratriptan, with each one demonstrating specific pharmacokinetic parameters that may be translated into clinical advantage. Although second generation triptans possess better bioavailability compared to sumatriptan, they all still need improvement. Objective: This review illustrates a survey for the available researches aimed to enhance triptans' bioavailability and hence effectiveness, either by investigating alternative routes of administration, other than oral route and/or designing appropriate formulations. Results: Promising results were gained by many researchers after studying different routes for triptans' administration, e.g. nasal, buccal, sublingual, transdermal and pulmonary using well designed formulations, e.g. nanocarriers, microcarriers, orodispersible tablets or films, in situ gels, microneedles for transdermal application, etc.		

			Conclusion: Utilizing alternative routes for triptans' administration in addition to designing appropriate formulations, were successful approaches. However, further investigations should be conducted to establish their bioavailability and in vitro- in vivo correlation studies are also required, to confirm the potential of the designed formulations for use in humans, hence novel efficient triptans' formulations may appear on the market in the near future.		
8	Non-antibiotic Therapies for Treatment of *Helicobacter pylori* Infection. Inventi Rapid:Pharm Biotech & Microbio, 2016 (2) 1-5.	Microbiology	Abstract: Helicobacter pylori (H. pylori) is a worldwide infection that affects millions of people. Some people develop only minor symptoms or even no symptoms at all, whereas others complain of terrible stomach and chest pain, diarrhea, bloating, nausea, vomiting, heartburn, headaches, depression, anxiety and rashes. H. pylori can be eradicated by using conventional medical treatments or a natural approach. However, both approaches can also fail miserably due to patient incompliance and antimicrobial resistance of the infecting H. pylori strain. Therefore, a non-antibiotic agent that is both effective and free from side effects might be of considerable importance for the eradication of H. pylori.	2016	https://www.researchgate.net/publication/296666818_Non-antibiotic_Therapies_for_Treatment_of_Helicobacter_pylori_Infection

9	Evaluation of Clinical and Antimicrobial Efficacy of Silver Nanoparticles and Tetracycline Films in the Treatment of Periodontal Pockets. IOSR Journal of Dental and Medical Sciences (IOSR-JDMS), 14 (7) 113-123.	Dentistry	Periodontitis is a multifactorial infection associated with a variable bacterial pattern. The treatment focuses mainly on the reduction of the total bacterial count. Local delivery of antimicrobials has been investigated as an adjunct to conventional therapy. Tetracycline was proved to inhibit collagenases and was thus proposed to be useful in treating diseases. In recent years, silver nanoparticles have attracted considerable attention for medical applications due to their antibacterial activity. This study aims to evaluate the clinical and the microbiological findings following intrasulcular applications of tetracycline films and silver nanoparticles in periodontal pockets. A total of 48 periodontal pockets were studied. Group (A) received scaling and root planing with tetracycline film application, Group (B): scaling and root planing with silver nanoparticles application and Group (C): scaling and root planing only. The drugs were applied once weekly for three weeks. Clinical parameters were taken at baseline, after one and three months. Samples of gingival crevicular fluid were obtained at baseline and after one month for microbiological analysis. Groups A and B showed a significant decrease in probing depth and clinical attachment level as well as the reduction in the	2015	**DOI**: 10.9790/0853-1471113123

			bacterial count compared to Group C. Thus, local application of tetracycline films and silver nanoparticles were effective in improving the clinical outcome and elimination of bacterial infection in periodontal pockets.		
10	Development of mucoadhesive microbeads using thiolated sodium alginate for intrapocket delivery of resveratrol. International Journal of Pharmaceutics, 487 (2015) 305–313.	Pharmaceutics	Resveratrol (Res), a polyphenolic phytoalexin, had shown a promising therapeutic efficacy towards treatment of periodontal disease in vitro. This work aims to develop Res microbeads with strong mucoadhesion using thiolated alginate (TA) for local treatment of periodontal pockets. TA was synthesized by conjugating sodium alginate (A) with thioglycolic acid. Product was evaluated by IR and DSC. Both A and A:TA Res microbeads with different ratios were prepared by ionotropic gelation method. Formulations were evaluated regarding their entrapment efficiency (%EE), swelling index (SI), in vitro drug release and kinetics. Selected formula was examined for its mucoadhesion by ex vivo wash-off method, surface morphology using scanning electron microscope (SEM) and stability against light. Clinical evaluation is running.Formation of TA was confirmed. %EE for all formulations ranged from 83.72 to 104.54%. Results revealed a significant lower SI for TA rich	2015	DOI: 10.1016/j.ijpharm.2015.04.010

			formulation (A/TA 1:1) along with slower release rate and zero-order kinetics, in addition to powerful mucoadhesion; 26% remaining of microbeads after 1h, compared to 2% for A microbeads. SEM micrographs showed a rough surface with drug precipitation. The formula maintained its %EE after 5h exposure to direct sunlight. A/TA 1:1 mucoadhesive Res microbeads could be exploited as a prolonged drug release devices for intrapocket application.		
11	Development of gastroretentive metronidazole floating raft system for targeting Helicobacter pylori. International Journal of Pharmaceutics, 486 (2015) 297–305.	Pharmaceutics	The study demonstrates the feasibility of prolonging gastric residence time and release rate of metronidazole (Mz) by preparing floating raft system (FRS) using ion-sensitive in situ gel forming polymers. FRSs contained 3, 4, 5 and 0.5, 0.75, 1% w/v sodium alginate (Alg) and gellan gum (G), respectively, 0.25% w/v sodium citrate and calcium carbonate (C). Lipids: glyceryl mono stearate (GMS), Precirol(®) and Compritol(®) were incorporated into G-based formulations (G1%C1%). Mz:lipid ratio was 1:1, except for Mz:GMS, ratios of 1:1.5 and 1:2 were also investigated. Buoyancy, gelation capacity and viscosity parameters were evaluated. Drug release and kinetics for selected formulae were examined. The selected lipid	2015	DOI: 10.1016/j.ijpharm.2015.04.004

			containing formula was subjected to an accelerated stability testing. Alg4%C2% FRS exhibited short gelation lag time (3s), long duration (>24h), floating lag time 1m in and duration >24h, and a reliable sustained drug release (MDT 6h). Gellan gum FRSs achieved successful floating gastroretention, but failed to achieve the required gelation capacity. Incorporation of GMS (Mz:GMS 1:1) enhanced the gelation lag time and duration (6s and >24h, respectively), keeping sustained drug release and formulation stability. The improved characteristics of the selected FRS make them excellent candidates for gastric targeting to eradicate Helicobacter pylori.		
12	Preparation and evaluation of periodontal films based on polyelectrolyte complex formation. Pharm. Dev. Technol. 20 (3) 297-305.	Pharmaceutics	Local intra-pocket drug delivery devices can provide an effective concentration of the antimicrobial agent at the site of action with avoidance of undesirable side effects. This study explored the application of chitosan-alginate and chitosan-pectin polyelectrolyte complex (PEC) films as drug release regulators for tetracycline HCl (Tc) to treat periodontal pockets. Periodontal films with 1:1 Tc:PEC ratio were prepared using 1:1 chitosan (Ch) to sodium alginate (A) or 1:3 Ch to pectin (P). The scanning electron microscope showed acceptable film appearance and differential scanning	2015	DOI: 10.3109/10837450.2013.862262

			calorimetry analysis confirmed complex formation. The in vitro release studies for both films showed a burst drug release, followed by prolonged release for 70 h. A prolonged antibacterial activity of both films against Staphylococcus aureus ATCC 6538 was observed over a period of 21 days. Aging studies indicated that the five months storage period in freezer did not significantly influence the drug release profile or the antibacterial activity of both films. Clinical evaluation showed a significant reduction in pocket depth ($p < 0.0001$) to their normal values (≤3 mm). PEC films could be exploited as a prolonged drug release devices for treatment of periodontal pockets.		
13	Comparative Study to Investigate the Effect of Meloxicam or Minocycline HCl In Situ Gel System on Local Treatment of Periodontal Pockets. AAPS PharmSciTech, 15 (4) 1021-1028, **2014.**	Pharmaceutics	*In situ* gelling formulations allow easy application to the target area. Gelation is induced by physiological stimuli at the site of application where the formula attains semisolid properties and exerts sustained drug release. *In situ* gelling formulations containing either 3% meloxicam (Mx) or 2% minocycline HCl (MH) were prepared for local application into the periodontal pockets. Gel formulations were based on the thermosensitive Pluronic® (Pl) and the pH-sensitive Carbopol® (C) polymers. C gels were prepared in combination	2014	DOI: 10.1208/s12249-014-0118-7

			with HPMC (H) to decrease its acidity. The total percent drug released from Pl formulae was 21.72% after 1 week for Mx and 85% after 3 days for MH. Their release kinetics data indicated anomalous non-Fickian behavior that could be controlled by both diffusion and chain relaxation. Addition of MH to C/H gels (1:2.5) resulted in liquefaction, followed by drug precipitation. Regarding C/H gel containing Mx, it showed a prolonged release rate up to 7 days with an initial burst effect; the kinetics data revealed Fickian-diffusion mechanism. The *in vitro* antibacterial activity studies for MH gel in Pl revealed that the drug released exceeded the minimum inhibitory concentration (MIC) of MH against *Staphylococcus aureus* ATCC 6538; *placebo* gel showed no effect on the microorganism. Clinical evaluation of Pl gels containing either Mx or MH showed significant improvement in chronic periodontitis patients, manifested by decrease in pocket depth and gingival index and increase in bone density.		
14	Formulation and *in vitro* evaluation of size expanding gastro-retentive	Pharmaceutics	Size increasing (plug-type) levofloxacin hemihydrate (LVF) tablets for eradication of Helicobacter pylori (H. pylori) were prepared using in situ gel forming polymers including: gellan gum,	**2014**	DOI:10.1016/j.ijpharm.2014.01.024

	systems of Levofloxacin hemihydrate. International Journal of Pharmaceutics 464 (2014) 10–18.		sodium alginate, pectin and xanthan gum. Effect of cross-linkers: calcium and aluminum chloride, on the drug release was also studied. The prepared tablets were evaluated for their physicochemical parameters: weight variation, thickness, friability, hardness, drug content, water uptake and in vitro drug release. The optimized formula was subjected to further studies such as radial swelling test, FT-IR and DSC. Results revealed that LVF release depends not only on the nature of the matrix but also on the type of cross linker used to form this polymeric matrix. The addition of either calcium chloride or aluminum chloride, as cross-linkers, to gellan gum formulations significantly decreased drug release. Other polymers' formulations resulted in increased drug release upon addition of the same cross-linkers. The formula containing xanthan gum without any cross linker showed the most sustained LVF release with an increase in diameter with time, thus acting as a plug-type dosage form. IR spectra and DSC thermograms of LVF, xanthan gum, and a physical mixture of both, indicated that there was no interaction between the drug and the polymer and confirmed the drug stability.		

15	Nano-proniosomes enhancing the transdermal delivery of mefenamic acid. J Liposome Res, 24 (4) 280-289.	Pharmaceutics	Mefenamic acid (MA) is a BCS II class NSAID drug. It is available only in the form of tablets, capsules, and pediatric suspensions. Oral administration of MA is associated with severe gastrointestinal side effects. The aim of this study was to develop a convenient and low-cost transdermal drug delivery system for MA using proniosome as a novel carrier without the addition of penetration enhancers. The formulation factors, such as the presence of cholesterol, types of lecithin, and surfactants were investigated for their influence on the entrapment efficiency, rate of hydration, vesicle size, and zeta potential, *in vitro* drug release and skin permeation in order to optimize the proniosomal formulations with the minimum dose of the drug. Furthermore, the *in vivo* anti-inflammatory effect was evaluated on a formalin-induced rat paw edema model. The results showed that the type of surfactants had higher impact on the entrapment efficiency than the type of lecithins, with the highest in Span 80 (82.84%). The release of MA from Span 80 proniosomal gel was significantly affected by the type of lecithin used. The addition of cholesterol significantly increased both the drug release and the skin permeation flux of MA. Zeta potential showed a	**2014**	DOI: 10.3109/08982104.2014.911313

			stable A4 noisomal suspension. DSC revealed the molecular dispersion of MA into the loaded proniosomes. *In vivo* study of the treatment group with MA proniosome gel showed a significant inhibition of rat paw edema compared with the same gel without the drug (control). The results of this study suggest that proniosomes are promising nano vesicular carriers and safe alternatives to enhance the transdermal delivery of MA.		
16	Design and Evaluation of Gastroretentive Levofloxacin Floating Mini-tablets-in-capsule System for Eradication of Helicobacter pylori. Saudi Pharmaceutical Journal, 22 (6), 570–579.	Pharmaceutics	Gastroretentive levofloxacin (LVF) floating mini-tablets for the eradication of Helicobacter pylori (H. pylori) were prepared using the matrix forming polymer hydroxypropyl methylcellulose (HPMC K100M), alone or with Carbopol 940P in different ratios by wet granulation technique. Buoyancy of mini-tablets was achieved by an addition of an effervescent mixture consisting of sodium bicarbonate and anhydrous citric acid to some formulations. The prepared mini-tablets were evaluated for weight variation, thickness, friability, hardness, drug content, in vitro buoyancy, water uptake and in vitro release. The optimized formula was subjected to further studies: FT-IR, DSC analysis and in vivo examination in healthy volunteers. The prepared mini-tablets exhibited	**2014**	DOI:10.1016/j.jsps.2014.02.009

			satisfactory physicochemical characteristics. Incorporation of gas-generating agent improved the floating parameters. HPMC K100M mini-tablet formulation (F1) offered the best controlled drug release (>8 h) along with floating lag time <1 s and total floating time >24 h. The obtained DSC thermograms and FT-IR charts indicated that there is no positive evidence for the interaction between LVF and ingredients of the optimized formula. The in vivo test confirmed the success of the optimized formula F1 in being retained in the stomach of the volunteers for more than 4 h. LVF floating mini-tablets based on HPMC K100M is a promising formulation for eradication of H. pylori.		
17	Helicobacter pylori: An Overview on Antimicrobials and Drug Delivery Systems for Its Eradication. Current Drug Delivery, 11,312-306.	Pharmaceutics	Since the discovery of Helicobacter pylori (H. pylori) in the early 1980s, its eradication has been one of the most important global challenges in gastroenterology. Various circumstances make the treatment with antimicrobials particularly difficult. One problem has been that antibiotics commonly used were designed for the treatment of infections throughout the body rather than for delivering high concentrations locally within the stomach. Many gastroretentive dosage forms were developed in order to eradicate the infection, yet additional	**2014**	DOI:10.2174/1567201811666140327145049

			advancements are still needed to eliminate the infection completely and decrease its prevalence worldwide. An overview on different antimicrobials and a literature survey about different drug delivery systems used in eradication of H. pylori infection are presented in this review.		
18	Floating mini-tablets-in-capsule system for eradication of H. pylori: 9783659552502, Amazon.com: **Books**. Lambert Academic Publishing. **Paperback:** 136 pages **Publisher:** LAP LAMBERT Academic Publishing (July 15, 2014) **Language:** English **ISBN-10:** 365955250X	Pharmaceutics	The treatment of H. pylori remains a challenging clinical problem despite extensive research over the last 25 years. Levofloxacin (LVF) is safe and effective in first, second, and third line H. pylori eradication. Eradication rates were over 90% for the LVF based therapy. Conventional tablets or capsules have insufficient gastric residence time to treat H. pylori. Recently, gastroretentive systems for treating H. pylori have shown special interest. The prolongation of the local availability of the antibacterial agents has been reported to be an important factor to increase the effectiveness of H. pylori treatment. This will ensure a high drug concentration in the gastric mucosa for better microbial eradication. Gastric retention could be achieved by the use of floating systems, which are either based on an inherently low density material or on effervescence. Effervescent and non-effervescent mini-tablets (4 mm) formulations	**2014**	https://www.google.com/search?safe=strict&q=%229783659552502,%22+Amazon.com:+Books.+Lambert+Academic+Publishing.&sa=X&ved=2ahUKEwjvsY-X0IfmAhV0sXEKHdE6CXwQ5t4CMAB6BAgFEAc&biw=1164&bih=480

	ISBN-13: 978-3659552502 **Product Dimensions:** 5.9 x 0.3 x 8.7 inches		containing 250 mg LVF were prepared either by direct compression or wet granulation techniques. A radiological method was adopted to monitor mini - tablets in the stomach of humans which proved that prolonged gastric residence could be obtained.		
19	Formulation of drug delivery systems based on gel-forming polymers: 978-3-659-62978-5, Amazon.com: **Books**. Lambert Academic Publishing. Publisher: LAP LAMBERT Academic Publishing (2014) Language: English ISBN- 978-3-659-62978-5 ISBN-10:3659629782 EAN:9783659629785	Pharmaceutics	**Blurb/Short text:** Local intra-pocket drug delivery devices can provide an effective concentration of the antimicrobial agent at the site of action with avoidance of undesirable side effects. This study explored the application of tetracycline HCl (Tc HCl) films based on gel forming polymers as drug release regulators for local treatment of periodontal pockets. Different film formulations were simply prepared by “solvent casting technique”. Films were suitable for intra-pocket application, they were hard enough to be easily inserted into the periodontal pocket. Immediately after application, they hydrate by the action of gingival crevicular fluid forming a bioadhesive gel which allow the formulation to get access to the entire pocket. Films exhibited a sustained release pattern. The stability study for the	**2014**	https://www.morebooks.de/store/gb/book/formulation-of-drug-delivery-systems-based-on-gel-forming-polymers/isbn/978-3-659-62978-5

			selected formula (Tc HCl/Na CMC) indicated that the five months storage period did not significantly influence the drug release behavior or its antibacterial activity. Clinical evaluation indicated that the film was well tolerated, no signs of irritation or prolonged foreign body sensation were reported by the test subjects and significant reduction in the pocket depth was observed.		