

SUMMARY OF PRODUCT CHARACTERISTICS

1. NAME OF THE MEDICINAL PRODUCT

OFLASYN TABLETS (Ofloxacin Tablets 200 mg)

2. QUALITATIVE AND QUANTITATIVE COMPOSITION

Active ingredient: Ofloxacin

For excipients: see 6.1.

Each Film Coated Tablet Contains:

Ofloxacin USP 200 mg

3. PHARMACEUTICAL FORM

Solid Dosage Form

Off White, Circular, Biconvex, Film Coated, Scored Tablets.

4. CLINICAL PARTICULARS

4.1 Therapeutic indications

The following indications are restricted to adults. Consideration should be given to official guidance on the appropriate use of antibiotics.

Ofloxacin is indicated for treatment of the following infections when these are caused by organisms sensitive to ofloxacin (see sections 4.4 and 5.1):

- Acute pyelonephritis and complicated urinary tract infections
- Bacterial prostatitis, epididymo-orchitis, including infection due to a sensitive *Neisseria gonorrhoeae* strain
- Urethritis and cervicitis, including infection due to a sensitive *Neisseria gonorrhoeae* strain
- Pelvic inflammatory disease (PID), in combination with other antibiotics
- Pelvic inflammatory disease (PID), including infection due to a sensitive *Neisseria gonorrhoeae* strain
- Pulmonary tuberculosis due to resistant mycobacteria, particularly in immunosuppressed patients (minor antituberculosis agent)
- Tuberculosis, in combined therapy
- Chronic sinusitis of bacterial origin
- Chronic suppurative otitis media
- Complicated intraabdominal infections
- Treatment of febrile neutropenia episodes when bacterial origin is suspected.
- Prophylaxis of febrile neutropenia when bacterial origin is suspected

In the following indications, ofloxacin should be used only when it is considered inappropriate to use other antibiotics that are commonly recommended for the treatment of these infections:

- Urethritis
- Uncomplicated cystitis
- Acute uncomplicated cystitis
- Acute (simple) cystitis in women
- Acute uncomplicated cystitis in adult, premenopausal women
- Recurring cystitis in women
- Acute uncomplicated infection of the lower urinary tract (simple cystitis)
- Acute exacerbations of chronic obstructive pulmonary disease, including chronic bronchitis
- Acute exacerbation of chronic bronchitis
- Exacerbation of chronic obstructive pulmonary disease
- Community-acquired pneumonia

- Acute sinusitis of bacterial origin
- Acute sinusitis
- Acute sinusitis of bacterial origin
- Acute exacerbation of chronic sinusitis
- Acute otitis media
- Osteoarticular infections
- Complicated skin and soft-tissue infections
- Gastrointestinal infections (for example, traveller's diarrhoea)

4.2 Posology and method of administration

Posology

The dose of ofloxacin is determined by the location and type of infection.

The recommended dose is 400 mg/day, preferably taken in the morning.

In individual cases it may be necessary to increase the dose to a maximum total dose of 800 mg daily, which should be given as 400 mg twice daily, at approximately equal intervals. This may be appropriate in infections due to pathogens known to have reduced or variable susceptibility to ofloxacin, in severe and/or complicated infections (e.g. of the respiratory or urinary tracts) or if the patient does not respond adequately.

The following doses are recommended:

Indication	Daily dosage (depending on severity)
Complicated urinary tract infection	200 mg twice daily (can be increased up to 400 mg twice daily)
Acute pyelonephritis	200 mg twice daily (can be increased up to 400 mg twice daily)
Acute prostatitis Chronic prostatitis	200 mg twice daily (can be increased up to 400 mg twice daily)
Epididymo-orchitis	200 mg twice daily (can be increased up to 400 mg twice daily)
Pelvic inflammatory disease	400 mg twice daily
Uncomplicated cystitis	200 mg twice daily or 400 mg once daily
Complicated cystitis	200 mg twice daily
Non-gonococcal urethritis	300 mg twice daily
Neisseria gonorrhoeae urethritis See section 4.4	400 mg single dose
Gastroenteritis	200 mg twice daily
Abdominal infections	200 mg twice daily
ENT infections and chronic respiratory tract infections	200 mg twice daily
Acute exacerbations of chronic obstructive pulmonary disease, including bronchitis	500 mg once daily
Cystic fibrosis	400 mg once daily (can be increased up to 400 mg twice daily)

*For prostatitis, extension of treatment can be considered after careful re-examination of the patient.

A single dose of 400 mg of ofloxacin is sufficient for the treatment of gonococcal urethritis and cervicitis due to susceptible *Neisseria gonorrhoeae*.

Special patient populations

Impaired renal function

In patients with impaired renal function, the initial dose should be 200 mg, followed by the dosages indicated in the table below:

Creatinine Clearance	Creatinine Level	Posology
20 to 50 mL/min	1.5 to 5 mg/dL	100 mg - 200 mg/24 hr

<20mL/min**	>5 mg/dL	100 mg every 24 hr
Haemodialysis and peritoneal dialysis		100 mg every 24 hr

Patients undergoing haemodialysis or peritoneal dialysis should be given 100 mg ofloxacin per day. When creatinine clearance cannot be measured, it can be estimated with reference to the serum creatinine level using the following Cockcroft's formula for adults:

$$\text{Men:} \quad \text{ClCr (ml/min)} = \frac{\text{weight(kg)} \times (140 - \text{age in years})}{72 \times \text{serum creatinine (mg/dl)}}$$

or

$$\text{ClCr (ml/min)} = \frac{\text{weight(kg)} \times (140 - \text{age in years})}{0.814 \times \text{serum creatinine (}\mu\text{mol/l)}}$$

$$\text{Women:} \quad \text{ClCr (ml/min)} = 0.85 \times (\text{above value})$$

Impaired liver function

In patients with serious liver function impairment, such as cases of hepatic cirrhosis with ascites, ofloxacin excretion may be reduced. In this case, the maximum daily dose must not exceed 400 mg.

Elderly

Age in itself does not necessitate dosage adjustment. However, special attention to renal function should be paid in elderly patients, and the dosage should be adapted accordingly (see section 4.4. QT interval prolongation).

Paediatric population

Ofloxacin is contraindicated for use in children or growing adolescents (see section 4.3).

Duration

The duration of treatment with Ofloxacin varies between 7 and 10 days depending on the susceptibility of the organism, severity of infection and clinical course. As with other antibiotics, it is recommended to continue treatment for an additional 3 days after the symptoms have disappeared.

The maximum daily dose is 800 mg.

Method of administration

For oral use.

Ofloxacin tablets can also be used to complete a course of therapy in patients who have shown improvement during initial treatment with intravenous ofloxacin.

Ofloxacin tablets should be swallowed whole with sufficient liquid before or during meal times. They should not be taken within two hours of mineral antacids, sucralate or metal ion preparations (aluminium, iron, magnesium or zinc), didanosine chewable or buffered tablets (for HIV), since reduction of absorption of ofloxacin can occur (see section 4.5).

4.3 Contraindications

The use of ofloxacin is contraindicated as follows:

- Hypersensitivity to the active substance, other quinolones or any of the excipients listed in section 6.1.
- In patients with a history of epilepsy or in patients predisposed to seizures due to pre-existing central nervous system disorders, such as craniocerebral trauma, central nervous system inflammation or cerebral infarction.
- In patients with a history of tendon disorders related to fluoroquinolone administration
- In children or growing adolescents, and in pregnant or breastfeeding women, since animal experiments do not entirely exclude the risk of damage to the growth-plate cartilage in the growing organism cannot be entirely excluded.

4.4 Special warnings and precautions for use

The use of ofloxacin should be avoided in patients who have experienced serious adverse reactions in the past when using quinolone or fluoroquinolone containing products (see section 4.8). Treatment of these patients with ofloxacin should only be initiated in the absence of alternative treatment options and after careful benefit/risk assessment (see also section 4.3).

Ofloxacin is not the first line treatment for pneumococcal pneumonia.

Methicillin-resistant S. aureus

Methicillin-resistant S. aureus is very likely to possess co-resistance to fluoroquinolones, including ofloxacin. Therefore, ofloxacin is not recommended for the treatment of known or suspected MRSA infections unless laboratory results have confirmed susceptibility of the organism to ofloxacin (and commonly recommended antibacterial agents for the treatment of MRSA-infections are considered inappropriate).

Resistance to fluoroquinolones of E. coli

The most common pathogen involved in urinary tract infections varies across the European Union. Prescribers are advised to take into account the local prevalence of resistance in *E. coli* to fluoroquinolones.

Streptococcus pneumoniae, β-haemolytic Streptococci and Mycoplasma

Ofloxacin is not the drug of first choice for pneumonia caused by Pneumococci or Mycoplasma or infection caused by β-haemolytic Streptococci.

Neisseria gonorrhoeae infections

Due to increase in resistance to *N. gonorrhoeae*, ofloxacin should not be used as empirical treatment option in suspected gonococcal infection (urethral gonococcal infection, pelvic inflammatory disease and epididymo-orchitis, unless the pathogen has been identified and confirmed as susceptible to ofloxacin). If clinical improvement is not achieved after 3 days of treatment, the treatment should be reconsidered.

Pelvic inflammatory disease

For pelvic inflammatory disease, ofloxacin should only be considered in combination with anaerobic coverage. Cases of severe bullous skin reactions, such as Stevens-Johnson syndrome or toxic epidermal necrolysis, have been reported with ofloxacin (see section 4.8). Patients should be advised to contact their doctor immediately prior to continuing treatment if skin and/or mucosal reactions occur.

Hypersensitivity and allergic reactions

Hypersensitivity and allergic reactions have been reported for fluoroquinolones after first administration. Anaphylactic and anaphylactoid reactions can progress to life-threatening shock, even after the first administration. In these cases ofloxacin should be discontinued and suitable treatment (e.g. treatment for shock) should be initiated.

Prolonged, disabling and potentially irreversible serious adverse drug reactions

Very rare cases of prolonged (continuing months or years), disabling and potentially irreversible serious adverse drug reactions affecting different, sometimes multiple, body systems (musculoskeletal, nervous, psychiatric and senses) have been reported in patients receiving quinolones and fluoroquinolones irrespective of their age and pre-existing risk factors. Ofloxacin should be discontinued immediately at the first signs or symptoms of any serious adverse reaction and patients should be advised to contact their prescriber for advice.

Aortic aneurysm and dissection and heart valve regurgitation/incompetence

Epidemiologic studies report an increased risk of aortic aneurysm and dissection, particularly in elderly patients, and of aortic and mitral valve regurgitation after intake of fluoroquinolones. Cases of aortic aneurysm and dissection, sometimes complicated by rupture (including fatal ones), and of regurgitation/incompetence of any of the heart valves have been reported in patients receiving fluoroquinolones (see section 4.8).

Therefore, fluoroquinolones should only be used after careful benefit-risk assessment and after consideration of other therapeutic options in patients with positive family history of aneurysm disease or congenital heart valve disease, or in patients diagnosed with pre-existing aortic aneurysm and/or aortic dissection or heart valve disease, or in presence of other risk factors or conditions predisposing for both aortic aneurysm and dissection and heart valve regurgitation/incompetence (e.g. connective tissue disorders such as Marfan syndrome or Ehlers-Danlos syndrome, Turner syndrome, Behcet's disease, hypertension, rheumatoid arthritis) or additionally for aortic aneurysm and dissection (e.g. vascular disorders such as Takayasu arteritis or giant cell arteritis, or known atherosclerosis, or Sjögren's syndrome) or additionally for heart valve regurgitation/incompetence (e.g. infective endocarditis).

The risk of aortic aneurysm and dissection, and their rupture may also be increased in patients treated concurrently with systemic corticosteroids.

In case of sudden abdominal, chest or back pain, patients should be advised to immediately consult a physician in an emergency department.

Patients should be advised to seek immediate medical attention in case of acute dyspnoea, new onset of heart palpitations, or development of oedema of the abdomen or lower extremities.

Severe bullous reactions

Cases of severe bullous skin reactions such as Stevens-Johnson syndrome or toxic epidermal necrolysis have been reported with ofloxacin (see section 4.8). Patients should be advised to contact their doctor immediately prior to continuing treatment if skin and/or mucosal reactions occur.

Diseases caused by *Clostridioides difficile*

Diarrhoea, especially if severe, persistent and/or bloody, occurring during or after treatment with ofloxacin (including several weeks after treatment), may be symptomatic of pseudomembranous colitis (*Clostridioides difficile*– associated diarrhoea – CDAD). CDAD may range in severity from mild to life threatening, the most severe form of which is pseudomembranous colitis (see section 4.8). It is therefore important to consider this diagnosis in patients who develop serious diarrhoea during or after treatment with ofloxacin.

If pseudomembranous colitis is suspected, treatment with ofloxacin should be discontinued immediately.

Specific targeted antibiotic therapy must be started without delay (e.g. oral vancomycin, oral teicoplanin or metronidazole). Products that inhibit peristalsis are contraindicated in this clinical situation.

Patients predisposed to seizures

Quinolones may lower the seizure threshold and may trigger seizures. Ofloxacin is contraindicated in patients with a history of epilepsy (see section 4.3) and, as with other quinolones, ofloxacin should be used with extreme caution in patients predisposed to seizures.

Patients with a known predisposition to seizures may include those with pre-existing central nervous system lesions, concomitant treatment with fenbufen and similar non-steroidal anti-inflammatory drugs (NSAIDs), or with drugs which lower the cerebral seizure threshold, such as theophylline (see section 4.5 interactions).

In case of convulsive seizures, treatment with ofloxacin should be discontinued (see section 4.5).

Tendonitis and tendon rupture

Tendinitis and tendon rupture (especially but not limited to Achilles tendon), sometimes bilateral, may occur as early as within 48 hours of starting treatment with quinolones and fluoroquinolones and have been reported to occur even up to several months after discontinuation of treatment. The risk of tendinitis and tendon rupture is increased in older patients, patients with renal impairment, patients with solid organ transplants, and those treated concurrently with corticosteroids. Therefore, concomitant use of corticosteroids should be avoided.

At the first sign of tendinitis (e.g. painful swelling, inflammation) the treatment with ofloxacin should be discontinued and alternative treatment should be considered. The affected limb(s) should be appropriately treated (e.g. immobilisation). Corticosteroids should not be used if signs of tendinopathy occur.

Patients with impaired renal function

Since ofloxacin is mainly excreted by the kidneys, the dose of ofloxacin should be adjusted in patients with renal impairment (see section 4.2).

Patients with history of psychotic disorder

Psychotic reactions have been reported in patients receiving fluoroquinolones, including ofloxacin. In some cases these have progressed to suicidal ideation or self-endangering behavior including suicide attempt, sometimes after a single dose of ofloxacin (see section 4.8). In the event that a patient develops these reactions, ofloxacin should be discontinued immediately at the first signs or symptoms of these reactions and patients should be advised to contact their prescriber for advice.

Alternative non-fluoroquinolone antibacterial therapy should be considered, and appropriate measures instituted.

Ofloxacin should be used with caution in patients with a history of psychotic disorder or in patients with psychiatric disease.

Patients with impaired liver function

Ofloxacin should be used with caution in patients with impaired liver function, as liver damage may occur. Cases of fulminant hepatitis potentially leading to liver failure (including fatal cases) have been reported with fluoroquinolones. Patients should be advised to stop treatment and contact their doctor if signs and symptoms of hepatic disease develop such as anorexia, jaundice, dark urine, pruritus or tender abdomen (see section 4.8).

Patients treated with vitamin K antagonists

Due to possible increase in coagulation tests (PT [prothrombin time]/INR [International Normalised Ratio]) and/or bleeding in patients treated with fluoroquinolones, including ofloxacin, in combination with a vitamin K antagonist (e.g. warfarin), coagulation tests should be monitored when these drugs are given concomitantly (see section 4.5).

Myasthenia gravis

Fluoroquinolones, including ofloxacin, have neuromuscular blocking activity and may exacerbate muscle weakness in patients with myasthenia gravis. Postmarketing serious adverse reactions, including deaths and the requirement for respiratory support, have been associated with fluoroquinolone use in patients with myasthenia gravis. Ofloxacin is not recommended in patients with a known history of myasthenia gravis.

Superinfection

As with other antibiotics, the use of ofloxacin, especially if prolonged, may result in overgrowth of non-susceptible organisms. Repeated evaluation of the patient's condition is essential. If secondary infection occurs during therapy, appropriate measures should be taken.

Prevention of photosensitisation

Photosensitisation has been reported with ofloxacin (see section 4.8). It is recommended that patients should not expose themselves unnecessarily to strong sunlight or to artificial UV rays (e.g. sunray lamp, solarium), during treatment and for 48 hours following treatment discontinuation in order to prevent photosensitisation.

QT interval prolongation

Very rare cases of QT interval prolongation have been reported in patients taking fluoroquinolones.

Caution should be taken when using fluoroquinolones, including ofloxacin, in patients with known risk factors for prolongation of the QT interval such as, for example:

- elderly patients and women may be more sensitive to QTc-prolonging medications. Therefore, caution should be taken when using fluoroquinolones, including ofloxacin, in these populations.
- uncorrected electrolyte imbalance (e.g. hypokalaemia, hypomagnesaemia)
- congenital long QT syndrome
- concomitant use of drugs that are known to prolong the QT interval (e.g. Class IA and III anti-arrhythmics, tricyclic antidepressants, macrolides, antipsychotics)
- cardiac disease (e.g. heart failure, myocardial infarction, bradycardia)

(See section 4.2 *Elderly*, section 4.5, section 4.8, and section 4.9).

Dysglycaemia

As with all quinolones, disturbances in blood glucose, including both hypoglycaemia and hyperglycaemia have been reported more frequently in the elderly, usually in diabetic patients receiving concomitant treatment with an oral hypoglycaemic agent (e.g., glibenclamide) or with insulin. Cases of hypoglycaemic coma have been reported. In diabetic patients, careful monitoring of blood glucose is recommended (see Section 4.8).

Ofloxacin treatment should be stopped immediately if a patient reports disturbance in blood glucose, and alternative non-fluoroquinolone antibacterial therapy should be considered.

Peripheral neuropathy

Sensory or sensorimotor reactions have been reported in patients receiving quinolones and fluoroquinolones, including ofloxacin. This reaction may occur quickly. Ofloxacin should be discontinued if the patient presents with neuropathy symptoms. This will minimise the risk of the development of an irreversible condition (see section 4.8).

Patients with glucose-6-phosphate-dehydrogenase deficiency

Patients with latent or diagnosed glucose-6-phosphate-dehydrogenase deficiency may be predisposed to haemolytic reactions if they are treated with quinolones. Therefore if ofloxacin has to be used in these patients, potential occurrence of haemolysis should be monitored.

Interference with laboratory tests

In patients treated with ofloxacin, determination of opiates or porphyrin levels in urine may give false-positive results. It may be necessary to confirm positive opiate or porphyrin screens by more specific methods.

Cross-resistance with various quinolones has been shown.

Vision disorders

If vision becomes impaired or any effects on the eyes are experienced, an ophthalmologist should be consulted immediately.

Excipient with known effect

Ofloxacin contains lactose. Patients with rare hereditary problems of galactose intolerance, total lactase deficiency, or glucose-galactose malabsorption should not take this medicine.

Ofloxacin contains less than 1 mmol sodium (23 mg) per tablet, that is to say essentially 'sodium-free'.

4.5 Interaction with other medicinal products and other forms of interaction

Antacids, Sucralfate, Metal Cations

As with other antibiotics, ofloxacin resorption may decrease if taken concomitantly with antacids containing aluminium (including, sucralfate), and magnesium hydroxides, aluminium phosphate, zinc, iron and didanosine chewable/buffered tablets. Therefore, ofloxacin should be taken 2 hours before such preparations.

Theophylline, fenbufen or similar non-steroidal anti-inflammatory drugs

No pharmacokinetic interactions of ofloxacin were found with theophylline in a clinical study. However, a pronounced lowering of the cerebral seizure threshold may occur when quinolones are given concurrently with theophylline, nonsteroidal anti-inflammatory drugs, or other agents, which lower the seizure threshold. However, ofloxacin does not interfere with theophylline metabolism.

In case of convulsive seizures, treatment with ofloxacin should be discontinued.

Probenecid, cimetidine, furosemide, and methotrexate

Probenecid decreased the total clearance of ofloxacin by 24%, and increased AUC by 16%. It acts at renal level by competing or inhibiting the active transport that forms the basis for tubular secretion. Caution should be exercised when ofloxacin is co-administered with drugs that affect the tubular renal secretion such as probenecid, cimetidine, furosemide and methotrexate. Especially when using high doses, the concomitant use of quinolones with other drugs undergoing tubular excretion, the excretion of the two drugs may diminish, which leads to increased serum concentrations.

Drugs known to prolong QT interval

Ofloxacin, like other fluoroquinolones, should be used with caution in patients receiving drugs known to prolong the QT interval (e.g. Class IA and III antiarrhythmics, tricyclic antidepressants, macrolides, and antipsychotics) (see section 4.4 QT interval prolongation).

Vitamin K antagonists

Increased values in coagulation tests (PT/INR) and/or bleeding, which may be severe, have been reported in patients treated with ofloxacin in combination with a vitamin K antagonist (e.g. warfarin). Coagulation tests should, therefore, be monitored in patients treated with vitamin K antagonists because of a possible increase in the effect of coumarin derivatives (see section 4.4).

Glibenclamide

Interaction with antidiabetic drugs has been reported. Ofloxacin may cause a slight increase in plasma glibenclamide levels when administered concurrently, it is therefore recommended that patients treated concomitantly with ofloxacin and glibenclamide be monitored particularly closely. Since hypoglycaemia is then more likely to occur, close monitoring of blood sugar levels is recommended in such cases.

4.6 Fertility, pregnancy and lactation

Pregnancy

Based on a limited amount of human data, the use of fluoroquinolones in the first trimester of pregnancy has not been associated with an increased risk of major malformations or other adverse effects on the newborn. Animal studies have shown damage to the joint cartilage in immature animals but no teratogenic effects. Therefore, ofloxacin must not be prescribed in pregnant women (see section 4.3).

Breast-feeding

Ofloxacin is excreted into human breast milk in small amounts. Because of the potential for arthropathy and other serious toxicity in the newborn, breast-feeding should be discontinued during treatment with ofloxacin (see section 4.3).

4.7 Effects on ability to drive and use machines

Ofloxacin has a minor or moderate effect on the ability to drive and use machines. Some adverse reactions (e.g. dizziness/vertigo, drowsiness, visual disturbance) may impair the patient's ability to concentrate and react, and therefore may constitute a risk in situations where these abilities are of particular importance such as driving a car or using machines. These effects may be enhanced by alcohol.

4.8 Undesirable effects

The information given below is based on data from clinical studies and on extensive post marketing experience.

Tabulated summary of adverse reactions

System Organ Class	Uncommon	Rare $\geq 1/10\ 000$	Very Rare	Frequency not
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	≥ 1/1 000 to < 1/100	to < 1/1 000	< 1/10 000`	known (cannot be estimated from available data)
Infections and Infestations	Fungal infection, Pathogen resistance			
Blood and Lymphatic System Disorders			Anaemia, Haemolytic anaemia, Leucopenia, Eosinophilia, Thrombocytopenia	Agranulocytosis, Bone marrow failure, Pancytopenia
Immune System Disorders		Anaphylactic reaction*, Anaphylactoid reaction*, Angioedema*	Anaphylactic shock*, Anaphylactoid shock*	
Metabolism and Nutrition Disorders		Anorexia		Hypoglycaemia in diabetics treated with hypoglycaemic agents (see section 4.4), Hyperglycaemia, Hypoglycaemic coma
Psychiatric disorders**	Agitation, Sleep disorder, Insomnia	Psychotic disorder (for e.g. hallucination), Anxiety, Confusional state, Nightmares, Depression, Delirium		Psychotic disorder and depression with self-endangering behaviour including suicidal ideation or suicide attempt (see Section 4.4), Nervousness
Nervous System Disorders	Dizziness, Headache	Somnolence, Paraesthesia, Dysgeusia, Parosmia	Peripheral sensory neuropathy*, Peripheral sensory motor neuropathy*, Convulsion*, Extra-pyramidal symptoms or other disorders of muscular coordination	Tremor, Dykinesia, Ageusia, Syncope, Benign intracranial hypertension (Pseudotumor cerebri)
Eye disorders**	Eye irritation	Visual disturbance		Uveitis

Ear and labyrinth disorders**	Vertigo		Tinnitus, Hearing loss	Hearing impaired
Cardiac disorders		Tachycardia		Ventricular arrhythmias and torsades de pointes (reported predominantly in patients with risk factors for QT prolongation), ECG QT prolonged (see section 4.4 and 4.9)
Vascular disorders***		Hypotension		
Respiratory, thoracic and mediastinal disorders	Cough, Nasopharyngitis	Dyspnoea, Bronchospasm		Allergic pneumonitis, Severe dyspnoea
Gastrointestinal disorders	Abdominal pain, Diarrhoea, Nausea, Vomiting	Enterocolitis, sometimes haemorrhagic	Pseudomembranous colitis*	Dyspepsia, Flatulence, Constipation, Pancreatitis
Hepatobiliary disorders		Hepatic enzymes increased (ALAT, ASAT, LDH, gamma-GT and/or alkaline phosphatase), Blood bilirubin increased	Jaundice cholestatic	Hepatitis, which may be severe, * Severe liver injury, including cases of acute liver failure, sometimes fatal, have been reported with ofloxacin, primarily in patients with underlying liver disorders (see section 4.4).
Skin and Subcutaneous Tissue Disorders	Pruritus, Rash	Urticaria, Hot flushes, Hyperhidrosis, Pustular rash	Erythema multiforme, Toxic epidermal necrolysis, Photo-sensitivity reaction*, Drug eruption, Vascular purpura, Vasculitis, which can lead in exceptional cases to skin necrosis	Stevens-Johnson syndrome, Acute generalised exanthemous pustulosis, Drug rash, Stomatitis, Exfoliative dermatitis
Musculoskeletal and connective tissue disorders**		Tendonitis	Arthralgia, Myalgia, Tendon rupture (e.g. Achilles	Rhabdomyolysis and/or Myopathy, Muscular

			tendon) which may occur within 48 hours of treatment start and may be bilateral	weakness, Muscle tear, Muscle rupture, Ligament rupture, Arthritis
Renal and Urinary Disorders		Serum creatinine increased	Acute renal failure	Acute interstitial nephritis
Congenital, familial and genetic disorders				Attacks of porphyria in patients with porphyria
General Disorders and Administration Site Conditions				Asthenia, Pyrexia, Pain (including pain in back, chest and extremities)

* postmarketing experience

** Very rare cases of prolonged (up to months or years), disabling and potentially irreversible serious drug reactions affecting several, sometimes multiple, system organ classes and senses (including reactions such as tendinitis, tendon rupture, arthralgia, pain in extremities, gait disturbance, neuropathies associated with paraesthesia, depression, fatigue, memory impairment, sleep disorders, and impairment of hearing, vision, taste and smell) have been reported in association with the use of quinolones and fluoroquinolones in some cases irrespective of pre-existing risk factors (see section 4.4).

*** Cases of aortic aneurysm and dissection, sometimes complicated by rupture (including fatal ones), and of regurgitation/incompetence of any of the heart valves have been reported in patients receiving fluoroquinolones (see section 4.4).

4.9 Overdose

Symptoms

The most important signs to be expected following acute overdose with ofloxacin are neurological symptoms such as confusion, dizziness, impairment of consciousness, seizures as well as gastrointestinal reactions such as nausea and mucosal erosions.

In the event of an overdose, symptomatic treatment should be implemented. ECG monitoring should be undertaken because of the possibility of QT interval prolongation.

In the event of an overdose, it is possible to remove the unabsorbed drug from the body with gastric lavage by administering absorbents and sodium sulphate during the first 30 minutes after the overdose. Antacids are recommended for protection of the gastric mucosa.

No specific antidote for Ofloxacin exists, but, as ofloxacin is excreted renally, it is possible to remove the already absorbed drug by forced diuresis.

Haemodialysis and peritoneal dialysis are not useful.

5 PHARMACOLOGICAL PROPERTIES

5.1 Pharmacodynamic properties

Pharmacotherapeutic group: Quinolone Antibacterials, Fluoroquinolones. ATC code: J01 MA01

Mechanism of action:

Ofloxacin contains ofloxacin, a broad-spectrum anti-infective agent that belongs to the fluoroquinolones group. Ofloxacin acts on both Gram-positive and Gram-negative bacteria.

Fluoroquinolones have a dose-dependent bactericidal activity with a moderate post-antibiotic effect. For this class of antibiotics, the ratio between the area under the curve (AUC) and the minimum inhibitory concentration (MIC) or between the maximum concentration (C_{max}) and the MIC is predictive of clinical success.

The prevalence of resistance may vary based on geographical and temporal data for a given species. It is recommended that information about local resistance be obtained, in particular for the treatment of serious

infections. If necessary, the opinion of an expert can be requested when the local prevalence of resistance is such that the usefulness of the product is uncertain, at least for certain types of infections.

Resistance to ofloxacin is acquired in a multi-step process at the target site through mutations in the two type II topoisomerases, DNA gyrase and topoisomerase IV. Other mechanisms of resistance such as permeability barriers (common in *Pseudomonas aeruginosa*) and efflux systems may also influence susceptibility to ofloxacin.

Bacteriological activity

The following pathogens may be considered susceptible (MIC₁ < 2 µg/mL):

- *Methicillin-susceptible Staphylococcus aureus*
- *Staphylococcus epidermidis*
- *Neisseria gonorrhoeae*
- *Neisseria meningitidis*
- *Haemophilus influenzae*
- *Escherichia coli*
- *Klebsiella*
- *Enterobacter, Citrobacter*
- *Proteus (indole-negative and indole-positive)*
- *Salmonella, Shigella*
- *Yersinia enterocolitica*
- *Campylobacter jejuni*
- *Vibrio cholerae*
- *Vibrio parahaemolyticus*
- *Hafnia spp.*
- *Aeromonas spp.*
- *Plesiomonas spp.*
- *Chlamydiae*
- *Legionella pneumophila.*

Moderately susceptible bacteria (MIC 2 to 4 µg/mL) include:

- *Serratia marcescens*
- *Enterococcus faecium*
- *Clostridium tetani*
- *Enterococci*
- *Streptococcus pyogenes*
- *Streptococcus pneumoniae*
- *Pseudomonas aeruginosa*
- *Acinetobacter*
- *Mycoplasma pneumoniae*
- *Streptococcus viridans*
- *Mycoplasma hominis*
- *Mycobacterium tuberculosis*
- *Mycobacterium fortuitum.*

Bacteria that can be considered resistant (MIC > 4 µg/mL):

- *Fusobacterium spp.*
- *Eubacterium spp.*
- *Peptococci*
- *Peptostreptococci*
- *Treponema pallidum*
- *Clostridium difficile*
- *Nocardia asteroides*
- *Bacteroides spp.*
- *Ureaplasma urealyticum.*

¹ minimum inhibitory concentration

In the case of urinary tract infection, an MIC ≤ 16 µg/mL can still be considered susceptible

5.2 Pharmacokinetic properties

Absorption

After oral administration, resorption of ofloxacin is rapid and independent of dose.

Distribution

The maximum serum concentrations after administration of a single 200 mg oral dose reach a mean of 2.5 to 3 µg/mL after 1 hour.

For 12 to 24 hours, serum concentrations remain greater than the MIC for most ofloxacin susceptible bacteria (see list above).

Ofloxacin has good tissue penetration, which allows it to reach tissue concentrations equal to or even higher than serum levels after a single administration. The apparent volume of distribution is 120 L.

The protein binding rate of ofloxacin is about 25%.

Dose	Cmax (µg/mL) - p.o.	Tmax (h) - p.o.
100 mg	1.0-1.3	0.5-1.6
200 mg	2.6	0.8-1.0
300 mg	3.4-3.8	0.8-1.2
400 mg	3.5-5.3	1.1-1.4

During a study, the following mean plasma concentrations were observed after oral administration of a single 200-mg and 400-mg dose of ofloxacin:

Dose	Mean plasma concentration (µg/mL)					
	1h	2h	4h	8h	12h	24h
200 mg	2.27	1.44	1.06	0.64	0.42	0.12
400 mg	4.50	3.24	2.35	1.45	0.96	0.30

After several administrations, the serum concentration does not increase significantly (about x 1.5).

Concentrations of ofloxacin in the urine and at the urinary tract infection site exceed those measured in the serum by a factor of 5 to 100.

Biotransformation

The serum elimination half-life is 6 to 7 hours and is linear.

Elimination

Excretion is primarily renal.

Ofloxacin is excreted almost entirely in the urine, unchanged (less than 5% is found as metabolites).

Ofloxacin was present in the bile in glucuronidised form. The pharmacokinetics of ofloxacin after intravenous infusion are very similar to those after oral doses. The plasma half-life is prolonged in persons with renal insufficiency; total and renal clearance decrease in accordance with the creatinine clearance. In renal insufficiency the dose should be reduced.

No clinically relevant interactions were seen with food and no interaction was found between ofloxacin and theophylline.

5.3 Preclinical safety data

Preclinical effects in conventional studies of safety pharmacology, acute toxicity, repeated dose toxicity, reproductive studies were observed only at exposures considered sufficiently in excess of the maximum human exposure indicating little relevance to clinical use. Joint toxicity was observed at exposure in the human therapeutic range in juvenile rats and dogs. Ofloxacin exhibits a neurotoxic potential and causes reversible testicular alterations at high doses.

Mutagenicity studies showed no evidence for mutagenicity of ofloxacin. However, like some other quinolones Ofloxacin is phototoxic in animals at exposure in the human therapeutic range. The phototoxic, photomutagenic and photocarcinogenic potential of ofloxacin is comparable with that of other gyrase inhibitors.

Preclinical data from conventional genotoxicity studies reveal no special hazard to humans, carcinogen potential has not been investigated.

Reproduction toxicity

Ofloxacin has no effect on fertility, peri- or postnatal development, and therapeutic doses did not lead to any teratogenic or other embryotoxic effects in animals. Ofloxacin crosses the placenta and levels reached in the amniotic fluid are about 30% of the maximal concentrations measured in maternal serum.

6 PHARMACEUTICAL PARTICULARS**6.1 List of excipients**

Starch (Maize), Microcrystalline Cellulose, DCP, Co-povidone (PVPK30), SMP, SPP, Purified Talc, Magnesium Stearate

Croscarmellose Sodium, Sodium Starch Glycolate, Unicoat FC White.

6.2 Incompatibilities

Not applicable

6.3 Shelf life

36 Months

6.4 Special precautions for storage

Store below 30°C.

Protect from light & moisture.

Keep all medicines out of reach of children

6.5 Nature and contents of container

Aluminium - Aluminium blister strip

Pack sizes: 1 strip of 10 tablets

6.6 Special precautions for disposal and other handling

No special requirements.

7. MARKETING AUTHORIZATION HOLDER

SYNERMED NIGERIA LIMITED

8. MANUFACTURER

Name and permanent address or registered place of business of the Marketing Authorization Holder and manufacturing site(s) physical address.

Name and Permanent address	Zest Pharma Plot No. 275, Sector "F" Sanwer Road, Indore 452 015 (M.P.) INDIA
Telephone No.:	+91 731 4252911/912
Fax No.:	+91 731 2722766
Email:	info@zestpharma.in

9. MARKETING AUTHORIZATION NUMBER

Of lasyn 200 Tablets – B4-6681

10. DATE OF FIRST REGISTRATION/ RENEWAL OF THE REGISTRATION

Of lasyn 200 Tablets – Date of first authorization: 29.11.2016

11. DATE OF REVISION OF THE TEXT: 31/12/2025