

Suven Research Publications in 2006

1: Arzneimittelforschung. 2006; 56(11):735-9.

Effect of food on bioavailability of a single oral dose of clopidogrel in healthy male subjects.

Nirogi RV, Kandikere VN, Mudigonda K.

Biopharmaceutical Research, Suven Life Sciences Ltd., Hyderabad, India.
ramakrishna_nirogi@yahoo.co.in

OBJECTIVE: The present study aimed at investigating the effects of concomitant food intake on the bioavailability of a single oral dose of clopidogrel (CAS 113665-84-2). **METHODS:** Clopidogrel was given under two conditions separated by a 14-day washout period: fasted and fed (after a standardized high fat breakfast). Concentrations of clopidogrel in plasma were quantified by a validated liquid chromatography-tandem mass spectrometry (LC-MS/MS) with positive ion electro-spray ionization using multiple reaction monitoring (MRM). Pharmacokinetic parameters such as C_{max}, T_{max}, AUC_{0-t}, AUC_{0-inf} and t_{1/2z} were estimated using a noncompartmental model.

RESULTS: The pharmacokinetic parameters were significantly affected by food intake. Specifically, C_m, and AUC_{0-inf} of clopidogrel increased 6.1-fold and 9.2-fold, respectively, in the fed condition compared to the fasted condition. The t_{1/2} increased from 2.5 h in the fasted state to 5.0 h in the fed state. The limit of quantification was 5 pg/mL for plasma clopidogrel analysis. **CONCLUSION:** Food substantially enhanced the bioavailability of clopidogrel in healthy subjects.

PMID: 17220050 [PubMed - indexed for MEDLINE]

2: Rapid Commun Mass Spectrom. 2006; 20(24):3709-16.

Quantification of trandolapril and its metabolite trandolaprilat in human plasma by liquid chromatography/tandem mass spectrometry using solid-phase extraction.

Nirogi RV, Kandikere VN, Shrivastava W, Mudigonda K.

Biopharmaceutical Research, Suven Life Sciences Ltd., Serene Chambers, Road #7, Banjara Hills, Hyderabad 500034, India. ramakrishna_nirogi@yahoo.co.in

A sensitive high-performance liquid chromatography/electrospray ionization tandem mass spectrometry (MS/MS) method was developed and validated for the simultaneous quantification of trandolapril and its metabolite trandolaprilat in human plasma using ramipril as an internal standard. Following solid-phase extraction, the analytes were separated using an isocratic mobile phase on a reversed-phase column and analyzed by MS/MS in the multiple reaction monitoring mode using the respective [M-H]⁻ ions, m/z 429/168 for trandolapril, m/z 401/168 for trandolaprilat and m/z 415/166 for the internal standard. The method exhibited a linear dynamic range of 20-10,000 pg/mL for both trandolapril and trandolaprilat in human plasma. The lower limit of quantification was 20 pg/mL for both trandolapril and its metabolite. Acceptable precision and accuracy were obtained for concentrations over the standard curve range. A run time of 2.0 min for each sample made it possible to analyze more than 400 human plasma samples per day. The validated method has been successfully used to analyze human plasma samples for application in pharmacokinetic, bioavailability or bioequivalence studies.

PMID: 17117442 [PubMed - indexed for MEDLINE]

3: J Chromatogr B Analyt Technol Biomed Life Sci. 2007 Apr 1; 848(2):271-6. Epub 2006 Nov 15.

A simple and rapid HPLC/UV method for the simultaneous quantification of theophylline and etofylline in human plasma.

Nirogi RV, Kandikere VN, Shukla M, Mudigonda K, Ajjala DR.

Biopharmaceutical Research, Suven Life Sciences Ltd., Serene Chambers, Road #7, Banjara Hills, Hyderabad 500034, India. ramakrishna_nirogi@yahoo.co.in

A simple, sensitive and selective high performance liquid chromatography (HPLC) method with ultraviolet detection (272 nm) was developed and validated for the simultaneous quantification of theophylline and etofylline in human plasma. Following rapid sample preparation, the analytes and internal standard (hydrochlorothiazide) were separated using an isocratic mobile phase on a reverse phase C18 column. The lower limit of quantification was 100 ng/mL for both theophylline and etofylline with a relative standard deviation of less than 6%. A linear dynamic range of 100-10,000 ng/mL for both theophylline and etofylline was established. This HPLC method was validated with between-batch precision of 2.2-6.0 and 1.4-3.7% for theophylline and etofylline, respectively. The between-batch accuracy was 94.3-98.0 and 95.4-98.2%, respectively. Stability of theophylline and etofylline in plasma was excellent, with no evidence of degradation during sample processing (autosampler) and 30 days storage in a freezer. This validated method is simple and rugged enough to be used in pharmacokinetic studies.

PMID: 17110179 [PubMed - indexed for MEDLINE]

4: Pharmazie. 2006 Oct; 61(10):828-34.

Liquid chromatographic-electrospray tandem mass spectrometric method for the quantification of nimodipine in human plasma.

Nirogi RV, Kandikere VN, Maurya S, Mudigonda K, Boosi R.

Biopharmaceutical Research, Suven Life Sciences Ltd, Serene Chambers, Banjara Hills, Hyderabad, India. ramakrishna_nirogi@yahoo.co.in

A simple, sensitive and rapid liquid chromatography/electrospray ionization tandem mass spectrometry (LC-MS/MS) method was developed and validated for the quantification of nimodipine, a calcium channel blocker, in human plasma. Following liquid-liquid extraction, the analytes were separated using an isocratic mobile phase on a reverse phase C18 column and analyzed by MS in the multiple reaction monitoring mode using the respective $[M + H]^+$ ions, m/z 419/343 for nimodipine and m/z 409/228 for the IS. The assay exhibited a linear dynamic range of 0.2-50 ng/mL for nimodipine in human plasma. The lower limit of quantification was 200 pg/mL with a relative standard deviation of less than 8%. Acceptable precision and accuracy were obtained for concentrations over the standard curve range. A run time of 3 min for each sample made it possible to analyze more than 250 human plasma samples per day. The validated method has been successfully used to analyze human plasma samples for application in pharmacokinetic, bioavailability or bioequivalence studies.

PMID: 17069421 [PubMed - indexed for MEDLINE]

5: Rapid Commun Mass Spectrom. 2006; 20(20):3030-8.

Simultaneous quantification of fexofenadine and pseudoephedrine in human plasma by liquid chromatography/tandem mass spectrometry with electrospray ionization: method development, validation and application to a clinical study.

Nirogi RV, Kandikere VN, Shukla M, Mudigonda K, Maurya S, Komarneni P.

Biopharmaceutical Research, Suven Life Sciences Ltd., Serene Chambers, Road #7, Banjara Hills, Hyderabad 500 034, India. ramakrishna_nirogi@yahoo.co.in

To support the pharmacokinetic and bioavailability study of a once-daily fexofenadine/pseudoephedrine combination, a high-performance liquid chromatography/positive ion electrospray tandem mass spectrometry (HPLC/ESI-MS/MS) method for the simultaneous quantification of fexofenadine and pseudoephedrine was developed and validated with 500 microL human plasma using mosapride as an internal standard (IS). Following solid-phase extraction, the analytes were separated using an isocratic mobile phase on a reversed-phase column and analyzed by MS/MS in the multiple reaction monitoring mode using the respective [M+H]⁺ ions, m/z 502/466 for fexofenadine, m/z 166/148 for pseudoephedrine and m/z 422/198 for the IS. The method exhibited linear dynamic ranges of 1-500 ng/mL and 2-1000 ng/mL for fexofenadine and pseudoephedrine, respectively, in human plasma. The lower limits of quantification were 1 and 2 ng/mL with a relative standard deviation of less than 10% for fexofenadine and pseudoephedrine, respectively. Acceptable precision and accuracy were obtained for concentrations over the standard curve range. The total chromatographic run time was 2 min and more than 400 human plasma samples could be analyzed in one day by running the system overnight. The method is precise and sensitive enough for its intended purpose.

PMID: 16969767 [PubMed - indexed for MEDLINE]

6: Arzneimittelforschung. 2006; 56(7):517-23.

Quantification of oxcarbazepine and its active metabolite 10-hydroxycarbazepine in human plasma by high-performance liquid chromatography.

Nirogi RV, Kandikere VN, Shukla M, Mudigonda K, Ajjala DR.

Biopharmaceutical Research, Suven Life Sciences Ltd., Hyderabad, India. ramakrishna_nirogi@yahoo.co.in

A simple, sensitive and selective high-performance liquid chromatography (HPLC) method with ultraviolet detection (230 nm) was developed and validated for the quantification of oxcarbazepine (CAS 28721-07-5), a new antiepileptic drug, and its active metabolite 10-hydroxycarbazepine (CAS 29331-92-8) in human plasma. Following solid-phase extraction, the analytes and internal standard (zaleplon, CAS 151319-34-5) were separated using an isocratic mobile phase on a reverse phase C18 column. The lower limit of quantification was 50 ng/mL for oxcarbazepine and 100 ng/mL for 10-hydroxycarbazepine with a relative standard deviation of less than 10%. A linear dynamic range of 50 to 5000 ng/mL for oxcarbazepine and of 100 to 10000 ng/mL for 10-hydroxycarbazepine was established. This HPLC method was validated with between-batch precision of 0.8 to 8.6% and 3.2 to 7.5% for oxcarbazepine and 10-hydroxycarbazepine respectively. The between-batch accuracy was 94.0 to 102.4% and 95.4 to 105.6%, respectively. Stability of oxcarbazepine and 10-hydroxycarbazepine in plasma was excellent, with no evidence of degradation during sample processing (autosampler) and 30 days storage in a freezer. This validated method is sensitive, simple and repeatable enough to be used in pharmacokinetic studies.

PMID: 16927533 [PubMed - indexed for MEDLINE]

7: Arzneimittelforschung. 2006; 56(5):328-36.

Liquid chromatographic tandem mass spectrometry method for the quantification of miglitol in human plasma.

Nirogi RV, Kandikere VN, Shukla M, Mudigonda K, Maurya S, Boosi R, Yerramilli A.

Biopharmaceutical Research, Suven Life Sciences Ltd, Hyderabad, India.
ramakrishna_nirogi@yahoo.co.in

A rapid, sensitive and accurate liquid chromatography-tandem mass spectrometry (LC-MS/MS) method was developed and validated for the quantification of miglitol (CAS 72432-03-2), an alpha-glucosidase inhibitor, in human plasma using gabapentin (CAS 60142-96-3) as internal standard (IS). Following protein precipitation, the analytes were separated using an isocratic mobile phase on a reversed phase phenyl column and analyzed by MS in the multiple reaction monitoring mode using the respective $[M+H]^+$ ions, m/z 208/146 for miglitol and m/z 172/154 for the IS. The assay exhibited a linear dynamic range of 100-6000 ng/mL for miglitol in human plasma. The lower limit of quantification was 100 ng/mL with a relative standard deviation of less than 5 %. Acceptable precision and accuracy were obtained for concentrations over the standard curve ranges. The average absolute recoveries of miglitol and the IS from spiked plasma samples were 40.5 +/- 2.7 and 47.1 +/- 2.9 %, respectively. A run time of 2.5 min for each sample made it possible to analyze a throughput of more than 400 human plasma samples per day. The validated method has been successfully used to analyze human plasma samples for application in pharmacokinetic, bioavailability or bioequivalence studies. The miglitol plasma concentration profile could be obtained for pharmacokinetic study. The observed maximum plasma concentration (C_{max}) of miglitol (100 mg oral dose) is 1740 ng/mL, time to observed maximum plasma concentration (t_{max}) is 3.5 h and elimination half-life ($t(1/2)$) is 2.5 h.

PMID: 16821643 [PubMed - indexed for MEDLINE]

8: Rapid Commun Mass Spectrom. 2006; 20(15):2286-92.

Quantification of tizanidine in human plasma by liquid chromatography coupled to tandem mass spectrometry.

Nirogi RV, Kandikere VN, Shukla M, Mudigonda K, Maurya S.

Biopharmaceutical Research, Suven Life Sciences Ltd., Serene Chambers, Road #7, Banjara Hills, Hyderabad 500 034, India. ramakrishna_nirogi@yahoo.co.in

A simple, sensitive and rapid high-performance liquid chromatography/positive ion electrospray tandem mass spectrometry (MS/MS) method was developed and validated for the assay of tizanidine in human plasma. Following liquid-liquid extraction, the analytes were separated using an isocratic mobile phase on a reversed-phase column and analyzed by MS/MS in the selected reaction monitoring mode. The assay exhibited a linear dynamic range of 50-5000 pg/mL for tizanidine in human plasma. The lower limit of quantification was 50 pg/mL with a relative standard deviation of less than 13%. Acceptable precision and accuracy were obtained for concentrations over the standard curve range. A run time of 2.5 min for each sample made it possible to analyze more than 300 human plasma samples per day. The validated method has been successfully used to analyze human plasma samples for application in pharmacokinetic, bioavailability or bioequivalence studies.

PMID: 16810637 [PubMed - indexed for MEDLINE]

9: J Anal Toxicol. 2006 May; 30(4):245-51.

Quantification of metaxalone in human plasma by liquid chromatography coupled to tandem mass spectrometry.

Nirogi RV, Kandikere VN, Shukla M, Mudigonda K, Shrivastava W, Datla PV.

Biopharmaceutical Research, Suven Life Sciences, Ltd., Serene Chambers, Road # 7, Banjara Hills, Hyderabad 500034, India. ramakrishna_nirogi@yahoo.co.in

A simple, rapid, sensitive, and selective liquid chromatography-tandem mass spectrometry (MS) method was developed and validated for the quantification of metaxalone, a skeletal muscle relaxant, in human plasma using galantamine as internal standard (IS). Following liquid-liquid extraction, the analytes were separated using an isocratic mobile phase on a reverse phase C18 column and analyzed by MS in the multiple reaction monitoring mode using the respective [M+H]⁺ ions, m/z 222/161 for metaxalone and m/z 288/213 for the IS. The assay exhibited a linear dynamic range of 50-5000 microg/L for metaxalone in human plasma. The lower limit of quantification was 50 microg/L with a relative standard deviation of less than 10%. Acceptable precision and accuracy were obtained for concentrations over the standard curve range. A run time of 2.5 min for each sample made it possible to analyze more than 400 human plasma samples per day. The validated method has been successfully used to analyze human plasma samples for application in pharmacokinetic, bioavailability, or bioequivalence studies.

PMID: 16803662 [PubMed - indexed for MEDLINE]

10: Arzneimittelforschung. 2006; 56(4):309-13.

Quantification of the cephalosporin antibiotic cefditoren in human plasma by high-performance liquid chromatography.

Nirogi RV, Kandikere VN, Shrivastava W, Mudigonda K.

Biopharmaceutical Research, Suven Life Sciences Ltd., Hyderabad, India.
nvsrk@suven.com

A simple, sensitive and selective high-performance liquid chromatography (HPLC) method with ultraviolet detection (305 nm) was developed and validated for quantification of cefditoren (CAS 104145-95-1), a broad-spectrum orally administered cephalosporin in human plasma. Following solid-phase extraction using Waters Oasis SPE cartridges, the analyte and internal standard (hydrochlorothiazide, CAS 58-93-5) were separated using an isocratic mobile phase of 0.03 % trifluoro acetic acid buffer / acetonitrile (81/19, v/ v) on reverse phase Waters symmetry C18 column. The lower limit of quantification was 50 ng/mL, with a relative standard deviation of less than 4%. A linear range of 50 to 5000 ng/mL was established. This HPLC method was validated with between-batch and within-batch precision of 0.5 to 3.7 % and 0.5 to 2.5%, respectively. The between-batch and within-batch accuracy was 96.9 to 103.8% and 97.5 to 102.3%, respectively. Stability of cefditoren in plasma was excellent, with no evidence of degradation during sample processing (autosampler) and 30 days storage in a freezer. This validated method is sensitive, simple and repeatable enough to be used in pharmacokinetic studies.

PMID: 16724518 [PubMed - indexed for MEDLINE]

11: Rapid Commun Mass Spectrom. 2006; 20(12):1864-70.

High-throughput quantification of perindopril in human plasma by liquid chromatography/tandem mass spectrometry: application to a bioequivalence study.

Nirogi RV, Kandikere VN, Shukla M, Mudigonda K, Maurya S, Komarneni P.

Biopharmaceutical Research, Suven Life Sciences Ltd., Serene Chambers, Road #7, Banjara Hills, Hyderabad 500 034, India.

A simple, sensitive and rapid high-performance liquid chromatography/positive ion electrospray tandem mass spectrometry method was developed and validated for the quantification of perindopril in human plasma. Following liquid-liquid extraction, the analytes were separated using an isocratic mobile phase on a reversed-phase column and analyzed by mass spectrometry in the multiple reaction monitoring mode using the respective $[M+H]^+$ ions, m/z 369/172 for perindopril and m/z 417/234 for the internal standard. The method exhibited a linear dynamic range of 0.1-100 ng/mL for perindopril in human plasma. The lower limit of quantification was 0.1 ng/mL with a relative standard deviation of less than 6.1%. Acceptable precision and accuracy were obtained for concentrations over the standard curve range. A run time of 2.0 min for each sample made it possible to analyze more than 450 human plasma samples per day. The validated method has been successfully used to analyze human plasma samples for application in pharmacokinetic, bioavailability and bioequivalence studies.

PMID: 16715478 [PubMed - indexed for MEDLINE]

12: Biomed Chromatogr. 2006 Oct; 20(10):1103-8.

Quantification of zolpidem in human plasma by high-performance liquid chromatography with fluorescence detection.

Nirogi RV, Kandikere VN, Shrivasthava W, Mudigonda K.

Biopharmaceutical Research, Suven Life Sciences Ltd, Serene Chambers, Road 7, Banjara Hills, Hyderabad 500034, India. ramakrishna_nirogi@yahoo.co.in

A simple, reliable HPLC method with fluorescence detection (excitation 320 and emission 388 nm) was developed and validated for quantitation of zolpidem in human plasma. Following a single-step liquid-liquid extraction, the analyte and internal standard (quinine) were separated using an isocratic mobile phase on a reversed-phase C(18) column. The lower limit of quantitation was 1.8 ng/mL, with a relative standard deviation of less than 5%. A linear dynamic range of 1.8-288 ng/mL was established. This HPLC method was validated with between-batch and within-batch precision of 1.7-4.8 and 1.2-2.3%, respectively. The between-batch and within-batch accuracy was 95.3-100.4 and 95.5-102.7%, respectively. Frequently coadministered drugs did not interfere with the described methodology. Stability of zolpidem in plasma was excellent, with no evidence of degradation during sample processing (autosampler) and 30 days storage in a freezer. This validated method is simple and repeatable enough to be used in Pharmacokinetic studies.

PMID: 16637000 [PubMed - indexed for MEDLINE]

13: Rapid Commun Mass Spectrom. 2006; 20(11):1695-700.

Quantification of clopidogrel in human plasma by sensitive liquid chromatography/tandem mass spectrometry.

Nirogi RV, Kandikere VN, Shukla M, Mudigonda K, Maurya S, Boosi R.

Biopharmaceutical Research, Suven Life Sciences Ltd., Serene Chambers, Road # 7, Banjara Hills, Hyderabad 500 034, India. ramakrishna_nirogi@yahoo.co.in

Abstract

A simple, sensitive and rapid high-performance liquid chromatography/positive electrospray ionization tandem mass spectrometry method was developed and validated for the assay of clopidogrel in human plasma. Following liquid-liquid extraction, the analytes were separated using an isocratic mobile phase on a reversed-phase column and analyzed by mass spectrometry in the multiple reaction monitoring mode using the respective $[M+H]^+$ ions, m/z 322/212 for clopidogrel and m/z 264/154 for the internal standard. The assay exhibited a linear dynamic range of 5-6000 pg/mL for clopidogrel in human plasma. The lower limit of quantification was 5 pg/mL with a relative standard deviation of less than 8%. Acceptable precision and accuracy were obtained for concentrations over the standard curve range. A run time of 2.5 min for each sample made it possible to analyze more than 400 human plasma samples per day. The validated method has been successfully used to analyze human plasma samples for application in pharmacokinetic, bioavailability or bioequivalence studies.

PMID: 16637000 [PubMed - indexed for MEDLINE]

14: Rapid Commun Mass Spectrom. 2006; 20(8):1225-30.

Liquid chromatography/negative ion electrospray tandem mass spectrometry method for the quantification of fluvastatin in human plasma: validation and its application to pharmacokinetic studies.

Nirogi RV, Kandikere VN, Shrivastava W, Mudigonda K, Datla PV.

Biopharmaceutical Research, Suven Life Sciences Ltd., Serene Chambers, Road #7, Banjara Hills, Hyderabad 500 034, India. ramakrishna_nirogi@yahoo.co.in

A simple, sensitive and rapid high-performance liquid chromatography/negative ion electrospray tandem mass spectrometry method was developed and validated for the assay of fluvastatin in human plasma. Following solid-phase extraction, the analytes were separated using an isocratic mobile phase on a reversed-phase column and analyzed by mass spectrometry in the multiple reaction monitoring mode using the respective $[M-H]^-$ ions, m/z 410/348 for fluvastatin and m/z 480/418 for the internal standard. The assay exhibited a linear dynamic range of 2-500 ng/mL for fluvastatin in human plasma. The lower limit of quantification was 2 ng/mL with a relative standard deviation of less than 5%. Acceptable precision and accuracy were obtained for concentrations over the standard curve range. A run time of 1.5 min for each sample made it possible to analyze more than 400 human plasma samples per day. The validated method has been successfully used to analyze human plasma samples for application in pharmacokinetic, bioavailability or bioequivalence studies.

PMID: 16541405 [PubMed - indexed for MEDLINE]

15: J Pharm Biomed Anal. 2006 Jun 7; 41(3):935-42. Epub 2006 Feb 28.

Development and validation of a sensitive liquid chromatography/electrospray tandem mass spectrometry assay for the quantification of olanzapine in human plasma.

Nirogi RV, Kandikere VN, Shukla M, Mudigonda K, Maurya S, Boosi R, Yerramilli A.

Biopharmaceutical Research, Suven Life Sciences Ltd., Serene Chambers, Road # 7, Banjara Hills, Hyderabad 500034, India. ramakrishna_nirogi@yahoo.co.in

A simple, sensitive and rapid liquid chromatography/electrospray ionization tandem mass spectrometry (LC-ESI-MS/MS) method was developed and validated for the quantification of olanzapine, atypical antipsychotic drug, in human plasma using loratadine as internal standard (IS). Following liquid-liquid extraction, the analytes were separated using an isocratic mobile phase on a reverse phase C18 column and analyzed by MS in the multiple reaction monitoring mode using the respective [M+H]⁺ ions, m/z 313/256 for olanzapine and m/z 383/337 for the IS. The assay exhibited a linear dynamic range of 0.1-30 ng/mL for olanzapine in human plasma. The lower limit of quantification was 100 pg/mL with a relative standard deviation of less than 10%. Acceptable precision and accuracy were obtained for concentrations over the standard curve range. The average absolute recovery of olanzapine from spiked plasma samples was 85.5±1.9%. A run time of 2.0 min for each sample made it possible to analyze more than 400 human plasma samples per day. The validated method has been successfully used to analyze human plasma samples for application in pharmacokinetic, bioavailability or bioequivalence studies.

PMID: 16504450 [PubMed - indexed for MEDLINE]

16: Biomed Chromatogr. 2006 Sep; 20(9):924-36.

Simultaneous quantification of atorvastatin and active metabolites in human plasma by liquid chromatography-tandem mass spectrometry using rosuvastatin as internal standard.

Nirogi RV, Kandikere VN, Shukla M, Mudigonda K, Maurya S, Boosi R, Anjaneyulu Y.

Biopharmaceutical Research, Suven Life Sciences Ltd, Serene Chambers, Road 7, Banjara Hills, Hyderabad 500034, India. ramakrishna_nirogi@yahoo.co.in

A simple, sensitive, selective and rapid liquid chromatography-tandem mass spectrometry (LC-MS/MS) method was developed and validated for the quantification of atorvastatin and its active metabolites ortho-hydroxyatorvastatin and para-hydroxyatorvastatin in human plasma using rosuvastatin as internal standard (IS). Following simple liquid-liquid extraction, the analytes were separated using an isocratic mobile phase on a reversed-phase C18 column and analyzed by MS in the multiple reaction monitoring mode using the respective [M+H]⁺ ions, m/z 559/440 for atorvastatin, m/z 575/466 for ortho-hydroxyatorvastatin, m/z 575/440 for para-hydroxyatorvastatin and m/z 482/258 for the IS. The assay exhibited a linear dynamic range of 0.1-20 ng/mL for atorvastatin and its two metabolites in human plasma. The lower limit of quantification was 100 pg/mL with a relative standard deviation of less than 8%. Acceptable precision and accuracy were obtained for concentrations over the standard curve range. The average absolute recoveries of atorvastatin, ortho-hydroxyatorvastatin, para-hydroxyatorvastatin and the IS from spiked plasma samples were 54.2 ± 3.2, 50.1 ± 3.8, 65.2 ± 3.6 and 71.7 ± 2.7%, respectively. A run time of 2.5 min for each sample made it possible to analyze more than 300 human plasma samples per day. The validated method has been successfully used to analyze human plasma samples for application in pharmacokinetic, bioavailability or bioequivalence studies.

PMID: 16470513 [PubMed - indexed for MEDLINE]

17: Anal Bioanal Chem. 2006 Feb; 384(3):780-90. Epub 2006 Jan 27.

Simultaneous quantification of cilostazol and its primary metabolite 3,4-dehydrocilostazol in human plasma by rapid liquid chromatography/tandem mass spectrometry.

Nirogi RV, Kandikere VN, Shukla M, Mudigonda K, Shrivasthava W, Datla PV, Yerramilli A.

Biopharmaceutical Research, Suven Life Sciences Ltd., Serene Chambers, Road no. 7, Banjara Hills, Hyderabad, 500034, India. ramakrishna_nirogi@yahoo.co.in

A simple, rapid, sensitive and selective liquid chromatography/electrospray tandem mass spectrometry method was developed and validated for the simultaneous quantification of cilostazol and its primary metabolite 3,4-dehydrocilostazol in human plasma using mosapride as an internal standard. The method involves a simple one-step liquid-liquid extraction with a diethyl ether and dichloromethane mixture (7:3). The analytes were chromatographed using an isocratic mobile phase on a reversed-phase C18 column and analyzed by mass spectrometry in the multiple reaction monitoring mode using the respective [M+H]⁺ ions, m/z 370/288 for cilostazol, m/z 368/286 for 3,4-dehydrocilostazol and m/z 422/198 for the internal standard. The assay exhibited a linear dynamic range of 5-2,000 ng/mL for cilostazol and 5-400 ng/mL for 3,4-dehydrocilostazol in human plasma. The lower limit of quantitation was 5 ng/mL for both cilostazol and its metabolite. Acceptable precision and accuracy were obtained for concentrations over the standard curve ranges. A run time of 2.5 min for each sample made it possible to analyze more than 400 human plasma samples per day. The validated method has been successfully used to analyze human plasma samples for application in pharmacokinetics, bioavailability or bioequivalence studies.

PMID: 16440196 [PubMed - indexed for MEDLINE]

18: Biomed Chromatogr. 2006 Sep; 20(9):833-42.

Sensitive and rapid liquid chromatography/tandem mass spectrometry assay for the quantification of amlodipine in human plasma.

Nirogi RV, Kandikere VN, Mudigonda K, Shukla M, Maurya S.

Biopharmaceutical Research, Suven Life Sciences Ltd, Serene Chambers, Road 7, Banjara Hills, Hyderabad 500034, India. ramakrishna_nirogi@yahoo.co.in

A simple, sensitive and rapid high-performance liquid chromatography/electrospray ionization tandem mass spectrometry method was developed and validated for the assay of amlodipine in human plasma. Following liquid-liquid extraction, the analytes were separated using an isocratic mobile phase on a reverse-phase C(18) column and analyzed by MS in the multiple reaction monitoring mode using the respective [M+H]⁺ ions, m/z 409/238 for amlodipine and m/z 409/228 for the IS. The assay exhibited a linear dynamic range of 50-10,000 pg/mL for amlodipine in human plasma. The lower limit of quantification was 50 pg/mL with a relative standard deviation of less than 8%. Acceptable precision and accuracy were obtained for concentrations over the standard curve range. The average absolute recoveries of amlodipine and the IS from spiked plasma samples were 74.7 +/- 4.6 and 72.1 +/- 2.0%, respectively. A run time of 1.5 min for each sample made it possible to analyze more than 400 human plasma samples per day. The validated method has been successfully used to analyze human plasma samples for application in pharmacokinetic, bioavailability or bioequivalence studies. The observed maximum plasma concentration (C_{max}) of amlodipine (2.5 mg oral dose) was 1425 pg/mL, time to observed maximum plasma concentration (T_{max}) was 8.1 h and elimination half-life (T_{1/2}) was 50.1 h.

PMID: 16397912 [PubMed - indexed for MEDLINE]

19: Biomed Chromatogr. 2006 Sep; 20(9):888-97.

Quantification of granisetron in human plasma by liquid chromatography coupled to electrospray tandem mass spectrometry.

Nirogi RV, Kandikere VN, Shukla M, Mudigonda K, Maurya S, Boosi R.

Biopharmaceutical Research, Suven Life Sciences Ltd, Serene Chambers, Road 7, Banjara Hills, Hyderabad 500034, India. ramakrishna.nirogi@yahoo.co.in

A simple, sensitive and rapid high-performance liquid chromatography/electrospray ionization tandem mass spectrometry method was developed and validated for the assay of granisetron in human plasma. Following liquid-liquid extraction, the analytes were separated using an isocratic mobile phase on a reversed-phase C18 column and analyzed by MS in the multiple reaction monitoring mode using the respective $[M+H]^+$ ions, m/z 313/138 for granisetron and m/z 409/228 for the IS. The assay exhibited a linear dynamic range of 0.1-20 ng/mL for granisetron in human plasma. The lower limit of quantification was 100 pg/mL with a relative standard deviation of less than 5%. Acceptable precision and accuracy were obtained for concentrations over the standard curve range. A run time of 2.0 min for each sample made it possible to analyze more than 400 human plasma samples per day. The validated method has been successfully used to analyze human plasma samples for application in pharmacokinetic, bioavailability or bioequivalence studies.

PMID: 16389637 [PubMed - indexed for MEDLINE]

20: Biomed Chromatogr. 2006 Aug; 20(8):794-9.

Quantitation of zopiclone and desmethylzopiclone in human plasma by high-performance liquid chromatography using fluorescence detection.

Nirogi RV, Kandikere VN, Mudigonda K.

Biopharmaceutical Research, Suven Life Sciences Ltd, Serene Chambers, Road 7, Banjara Hills, Hyderabad 500034, India. ramakrishna_nirogi@yahoo.co.in

A simple, reliable HPLC method using fluorescence detection (excitation 307 and emission 483 nm) was developed and validated for simultaneous quantitation of zopiclone and its metabolite desmethylzopiclone in human plasma. Following a single-step liquid-liquid extraction, the analytes and internal standard (zaleplon) were separated using an isocratic mobile phase on a reversed-phase C18 column. The lower limit of quantitation was 3 ng/mL for zopiclone and 6 ng/mL for desmethylzopiclone with a relative standard deviation of less than 5%. A linear dynamic range of 3-300 ng/mL for zopiclone and of 6-500 ng/mL for desmethylzopiclone was established. This HPLC method was validated with between-batch precision of 1.7-4.2% and 3.2-7.5% for zopiclone and desmethylzopiclone respectively. The between-batch accuracy was 99.4-111.5% and 101.6-104.8% for zopiclone and desmethylzopiclone, respectively. Frequently coadministered drugs did not interfere with the described methodology. Stability of zopiclone and desmethylzopiclone in plasma was excellent, with no evidence of degradation during sample processing (autosampler) and 30 days' storage in a freezer. This validated method is simple and repeatable enough to be used in pharmacokinetic studies.

PMID: 16292747 [PubMed - indexed for MEDLINE]

21: J Pharm Biomed Anal. 2006 Feb 13; 40(2):360-8. Epub 2005 Aug 19.

Rapid quantification of gabapentin in human plasma by liquid chromatography/tandem mass spectrometry.



Ramakrishna NV, Vishwottam KN, Koteswara M, Manoj S, Santosh M, Chidambara J, Sumatha B, Varma DP.

Biopharmaceutical Research, Suven Life Sciences Ltd., Serene Chambers, Road # 7, Banjara Hills, Hyderabad 500034, India. nvsrk@suvenc.com

A simple, sensitive and rapid liquid chromatography/tandem mass spectrometry (LC-MS/MS) method was developed and validated for the quantification of gabapentin, a new antiepileptic drug, in human plasma using its structural analogue, 1,1-cyclohexane diacetic acid monoamide (CAM) as internal standard. The method involved a simple protein precipitation by means of acetonitrile followed by a rapid isocratic elution with 10mM ammonium formate buffer/acetonitrile (20/80, v/v, pH 3.0) on Waters Symmetry C(18 reversed phase chromatographic column and analyzed by mass spectrometry in the multiple reaction monitoring mode. The precursor to product ion transitions of m/z 172-->154 and m/z 200-->182 were used to measure the analyte and the IS, respectively. The assay exhibited a linear dynamic range of 40-10000 ng/mL for gabapentin in human plasma. The limit of detection and lower limit of quantification in human plasma were 10 and 40 ng/mL, respectively. Acceptable precision and accuracy were obtained for concentrations over the standard curve ranges. A run time of 2 min for each sample made it possible to analyze a throughput of more than 400 human plasma samples per day. The validated method has been successfully used to analyze human plasma samples for application in pharmacokinetic, bioavailability or bioequivalence studies.

PMID: 16112830 [PubMed - indexed for MEDLINE]