

FILIPA BELCHIOR

EXPERIENCE

SENIOR FORENSIC SCIENTIST, POLÍCIA JUDICIÁRIA, JUDICIARY POLICE/SCIENTIFIC POLICE LABORATORY, LISBON, PORTUGAL, 2000 TO PRESENT (UNPAID LEAVE FROM 02/09/2011 TO 01/12/2012)
Chemistry Unit until May 2012. Fire and explosions investigation (gas explosions and explosives) covering all the country, and laboratory analysis. After a reorganisation of the laboratory units in June 2009, the unit was dedicated only to the laboratory work. Due to my background in chemistry I was mainly allocated to the laboratory, with unregular attendance to crime scenes. Laboratory work: flammable liquids and fire debris analysis, lachrymator sprays, acids, bases, unknown samples, restoration of firearms serial numbers, VIN and vehicle motor numbers. From May 2012 to April 2014: allocated to the Quality/Advisory unit. From April 2014 to May 2015: allocated to the Marks unit: shoeprints, toolmarks, tyre marks, restoration of the serial number of firearms and vehicles VIN and motor number. From May 2015 to November 2015 and April 2017 to October 2017: allocated to the toxicology unit: training, drugs analysis preparation. November 2017 to present: Chemistry unit. All the reports produced are court reports; testimony in court.

TECHNICAL RESPONSIBLE/SENIOR LABORATORY ANALYST, CONTROLAB-LABORATORY OF CHEMICAL, PHYSICAL AND BACTERIOLOGIC ANALYSIS, PÓVOA DE SANTA IRIA, PORTUGAL
MAY 1999 - DECEMBER 2000
Technical responsible for metal determination with several analytical techniques and different sample types. Responsible for the maintenance and improvements in the quality system in the metal analysis area.

GRANT RESEARCHER, IPIMAR-RESEARCH INSTITUTE OF FISHERIES AND SEA, NOWADAYS UNDER IPMA - PORTUGUESE INSTITUTE OF SEA AND ATMOSPHERE, LISBON, PORTUGAL
OCTOBER 1996 - DECEMBER 1999
Development of the practical work for the Post graduation in Oceanographic Chemistry, and later as a researcher. The work involved the analysis of mercury in water and sediments in rivers and the sea for environmental impact studies.

TEACHER, ESCOLA SECUNDÁRIA DA MOITA - MOITA HIGH SCHOOL, MOITA, PORTUGAL
OCTOBER 1996 - APRIL 1997
Teacher of Physics and Chemistry Sciences, and of Laboratory Techniques.

LABORATORY ANALYST WITH A GRANT FROM THE COMMETT-TECHWARE PROGRAMME, AZIENDA MEDITERRANEA GAS E ACQUA (AMGA), NOWADAYS UNDER GRUPPO IREN, GENOA, ITALY
JANUARY 1995 - MAY 1996
Chemical and physics analysis of water samples, domestic and effluents, sludge analysis and gas odorant.

LABORATORY ANALYST, UNIVERSITY OF AVEIRO, ENVIRONMENT DEPARTMENT, AVEIRO, PORTUGAL
DECEMBER 1993-JANUARY 1995
Analysis of metals for research projects; sampling campaigns.

EDUCATION

University of Central Lancashire — MSc in Fire Investigation, 2012 (Distinction).

University of Staffordshire - MSc in Forensic Science, 2007 (Distinction).

Universidad Nacional de Ensino a Distancia, Cadiz, Spain, Post Graduation in Oceanographic Chemistry, 1997.

University of Aveiro, Portugal - Degree in Chemistry (4 years), 1993.

TRAINING COURSES

Several courses at the Judiciary Police School. The most relevant are: Fire Investigation, Investigation of Environmental Crimes, Post-blast Investigation, Law and court testimony, Self-defence firearms training course, Police Oriented Contemporary English Language, Control and Identification of vehicles, Analytical Methods Validation (2014).

Analysis of IED in pre and post-blast scenarios, 11-15 June 2018, Policia Nacional, Madrid, Spain.

Training course on explosives analysis, 4-8 June 2018, Guardia Civil, Madrid, Spain.

“10 Year Anniversary, “From ignition to conclusion”, 3 day Training (Tested)”, United Kingdom Association of Fire Investigators (UK-AFI), UK (2013).

Radiologic Emergencies - National Authority for Civil Protection (2012).

Investigation and Identification of Explosives and Devices and simulation of situations of explosions in suspected scenarios of the use of explosives - Portuguese Air Force (2004).

ENFSI (European Network of Forensic Science Institutes) Workshops: "Interpretation of Analytical Data in Fire Investigation" e "The Investigation of Fatal Fires" (2009).

'John DeHaan's fire and explosion investigation course' and 'Seminar on learning lessons from fires, communicating the findings from fire investigations' - Fire Research Stablishment e Gardiner Associates, UK (2001).

Trainer professional ability certificate (1999).

TRAINING ACTIVITY

Tutor of the Module "Criminalistics" for the first MSc in Forensic Chemistry of the University of Coimbra, Portugal, on behalf of the Judiciary Police. I was the module tutor and I delivered all the material for 'Crime Scene' and 'Fires and Explosions' in 2008/2009 and 2013/2014.

Organisation and delivery of the training course 'Material evidence in fire investigation' for the Judiciary Police investigation officers (Inspectors, Chief-Inspectors, Criminal Investigation Coordinator). The course was delivered to the Judiciary Police departments across Portugal in 2007.

From 2001 I have been delivering training courses in 'The identification and preservation of evidence at fire/explosion scenes' for police officers. These courses were aimed at the Judiciary Police School, Public Security Police (Polícia de Segurança Pública), Republican National Guard (Guarda Nacional Republicana), Centre for Judiciary Studies (Centro de Estudos Judiciários) and the Fire-fighters Training Centre.

I trained new members of the unit, both technicians and forensic scientists, in the investigation of fire / explosions / explosive scene and laboratory work.

CONFERENCES/CONFERENCES/SEMINARS/MEETINGS

I have attended several conferences. The most relevant are:

2015 CEPOL (European Police College) European Police Research and Science Conference, Lisbon, 5-8 October 2015.

12º Congresso de Medicina Legal e Ciências Forenses (Legal Medicine and Forensic Sciences Congress), Porto, 7-9 November 2013.

6º Encontro Nacional de Cromatografia (Chromatography National Meeting), Funchal, Madeira Island, Portugal, 14-16 December 2009 (poster presentation).

5th Triennial Conference of the European Academy of Forensic Science (EAFS), Glasgow, UK, 8-11 September 2009 (poster presentation).

Technical Workshop on Forest Fires, Judiciary Police School, 12 May 2009.

Fire Crime in Europe Conference 2008, UK, 15-16 September 2008.

9th ISADE (International Symposium on the Analysis and Detection of Explosives) & 4th FINEX (Forensic Investigation Network for Explosives Investigation - ENFSI) 2007, Paris, France, 2-6 de July de 2007 (poster presentation).

"10th International Seminar "New Trends in Research of Energetic Materials"", 25-27 April 2007, University of Pardubice, Czech Republic.

4th Triennial Conference of the European Academy of Forensic Science (EAFS), Helsinki, Finland, 13-16 June 2006.

'10th Meeting ENFSI Fire & Explosion Working Group' of the ENFSI (European Network of Forensic Science Institutes), Madrid, Spain, 13-15 September 2006 (oral presentation).

'Fire and Explosion Investigation Working Group' annual meeting, ENFSI, Larnaca, Cyprus, 15-18 September 2004.

'Forest Fires, from prevention to investigation' conference, Lisbon, 20 February 2006.

'Criminal Investigation in Forest Fires' Sertã, 26 May 2004 (invited speaker).

XVIII Chemistry National Meeting, University of Aveiro, 25-27 March 2002 (poster presentation).

2º Chromatography National Meeting, Lisbon, 10-12 December 2001.

PUBLICATIONS, ORAL PRESENTATIONS AND POSTERS

Thesis:

Belchior, F., 2012. Evaluation of cross-contamination of nylon bags with heavy loaded petrol fire debris. University of Central Lancashire.

Belchior, F., 2006. Accurate mass of peroxide explosives. University of Staffordshire.

Belchior, F., 1997. Inputs fluviais para os oceanos. Series de Química Oceanográfica (I): monografias, 2, 41-69.

Papers in international scientific periodicals with referees:

Belchior, F. & Andrews, S., 2016. Evaluation of cross-contamination of nylon bags with heavy loaded petrol fire debris and with automotive paint thinner, *Journal of Forensic Sciences*, 61(6), 1622-1631.

Belchior, F. e Vale, C., 1999. Distribuição horizontal e vertical do mercúrio em sedimentos do estuário do Sado. Series de Química Oceanográfica, Serie (II) – Cuadernos, 1, 41-61.

Pio, C. A., Castro, L. M., Cerqueira, M. A., Santos, I. M., Belchior, F. and Salgueiro, M. L., 1996. Source assessment of particulate air pollutants measured at the southwest European coast, *Atmospheric Environment*, 30, 3309-3320.

Pio, C. A., Castro, L. M., Cerqueira, M. A., Salgueiro, M. L., Santos, I. M., Belchior, F., Physical-chemical characterisation of air masses at the Portuguese west coast, *Annales Geophysical, European Geophysical Society Symposia*, February 1995, C 387.

Papers in national periodicals with referees:

Belchior, F., Vale, C., Drago, T., Gil, O. e Madureira, M. J., 2000. Relação entre contaminantes, alumínio e matéria orgânica nos sedimentos do estuário inferior do Sado, *Estudos de Biogeoquímica na Zona Costeira Ibérica*, Ed. A. Duarte, C. Vale, R. Prego, Universidade de Aveiro, 227-234.

Other publications in the environmental area:

13 technical/scientific reports while working at IPIMAR, namely related to the construction of the Vasco da Gama's bridge in Lisbon, Portugal.

Oral communications:

Belchior, F., 2015, Evaluation of cross-contamination of nylon bags with heavy loaded petrol fire debris and with automotive paint thinner, 2015 CEPOL (European Police College) European Police Research and Science Conference, Lisbon, 5-8 October 2015.

Belchior, F., Fire Investigation: from fire scene to courtroom, 2nd International Meeting in Forensic Sciences and Criminal Behaviour, Monte da Caparica, 23-24 May 2014 (invited speaker).

Belchior, F., Assis, A., Caldeira, M.J., Crime, Química e Justiça, II Encontro Nacional de Estudantes de Química, (Crime, Chemistry and Justice, II Meeting of the Chemistry Students), Covilhã, 28-30 March 2014 (invited speaker).

Belchior, F., Química, Crime e Justiça, I Jornadas do Departamento de Química da Universidade de Aveiro (Chemistry, Crime and Justice, I Conference of the Chemistry Department of the University of Aveiro), Aveiro, Portugal, 3 May 2013 (invited speaker).

Belchior, F., Química forense, VIII Ciclo de Conferências do Núcleo de estudantes de Química da Associação Académica da Universidade de Aveiro (Forensic chemistry, VIII Group of Conferences of the Chemistry Students of the Academic Association of the University of Aveiro), Aveiro, Portugal, 20 May 2009 (invited speaker).

Belchior, F., Apresentação dos trabalhos realizados na Conferência sobre o Crime de Incêndio da Europa 2008, e Protocolo de preservação da cadeia da prova, Workshop Técnico sobre Incêndios Florestais, Escola de Polícia Judiciária (Presentation of the attended Fire Crime Conference in Europe 2008 and Chain of custody preservation protocol, Technical Workshop on Forest Fires, Judiciary Police School (former Institute of Judiciary Police and Criminal Sciences)), 12 May 2009.

Belchior, F., Pyrotechnic autoignition in a police station (Portugal), ENFSI Fire and Explosions Working Group Meeting 2006, 13-15 September, Madrid, Spain.

Belchior, F., LPC – Química, Workshop 'Química Analítica Forense' (Scientific Police Laboratory – Chemistry, Workshop 'Forensic Analytical Chemistry'), Porto, Portugal, 17 February 2005.

Belchior, F., LPC – Área de Química, Conferência 'A Investigação Criminal nos Incêndios Florestais', (Scientific Police Laboratory – Chemistry unit', Conference 'The Criminal Investigation in Forest Fires'), Sertã, Portugal, 26 May 2004.

Gil, O., Vale, C., Belchior, F., Madureira, M. J., Drago, T., Fonseca, N., Quintans, N. e Santos, I., Caracterização química e granulométrica de sedimentos superficiais do estuário do Sado com vista à sua eventual dragagem, Seminário sobre Dragagens, Dragados e Ambientes Costeiros, Lisbon, 7-8 May 1998.

Belchior, F., Madureira, M. J., Drago, T., Gil, O. e Vale C., Relação entre os teores de contaminantes nos sedimentos do estuário inferior do Sado e as suas características, IX Seminário Ibérico de Química Marinha (Relation between the contaminants in the sediment of the inferior estuary of Sado river and their characteristics, IX Iberian Seminar of Marine Chemistry), Aveiro, 16-18th April 1998.

Poster presentations:

Belchior, F. e Viegas, F., Morte Acidental vs Homicídio: um caso de estudo-2 (Accidental Death vs Homicide: a case-study-2), 6º Encontro Nacional de Cromatografia (Chromatography National Meeting), Funchal, 14-16 December 2009.

Farmer, N., Crowson, A., Modi, R., Belchior, F., Beardah, M., Haroune, N., Campbell, B., Analysis and Identification of Peroxide Explosives, 5th European Academy of Forensic Science Conference, Glasgow, UK, 8-11 September 2009.

Belchior, F., Accurate Mass of Peroxide Explosives TATP and HMTD, 9th ISADE (International Symposium on the Analysis and Detection of Explosives) & 4th FINEX (Forensic Investigation Network for Explosives Investigation do European Network of Forensic Sciences Institutes, ENFSI) 2007, Paris, 2-6 July 2007.

Belchior, F., Caldeira, M. J., Curado, M. J., Monteiro, A., Lopes, A. T., Crime, Química e Justiça (Crime, Chemistry and Justice), XVIII Encontro da SPQ (XVIII Meeting of the Chemistry Portuguese Society), Aveiro, March 2002, P41.

OTHER INFORMATION

Menção Elogiosa Colectiva (Collective Commendation) by the Ministry of Justice, 2010, for the important contribution in solving an extremely serious crime planned and executed in a thorough and violent way (Diário da República, 2ª Série, nº 203, 19th October 2010, Despacho nº 15737/2010).

Memberships: International Association of Arson Investigators (IAAI); United Kingdom Association of Fire Investigators (AFI.UK); Chartered Society of Forensic Sciences; European Network of Fire Investigation and Prevention (ENFIP); Portuguese Chemistry Society; European Network of Forensic Science Institutes (ENFSI) Working Group on Fire and Explosion Investigation from 2004 to 2008; Worldwide Association of Women Forensic Experts.