## IV. LIST OF FIGURES

	<u>Page</u>
Figure 1. Interactive process of risk analysis of mycotoxins in foods	21
Figure 2. Work plan	35
Figure 3. Thesis structure	37
Figure 4. Chemical structure of the main ochratoxins	41
Figure 5. OTA in the food chain. Possible routes for contamination of humans by	
OTA	51
Figure 6. Distribution of wine grape plantings in the world	75
Figure 7. Evolution of world-wide area of vineyards since 1976	76
Figure 8. Areas planted with vines distributed by continent in 2004	77
Figure 9. Areas planted with vines of the 12 leading countries in 2004	77
Figure 10. Evolution of the world-wide grape production since 1976	78
Figure 11. Production of grapes distributed by continent in 2004	78
Figure 12. Total grape production of the 12 leading countries in 2004	79
Figure 13. Evolution of the world-wide table grape production since 1986	79
Figure 14. Production of table grapes distributed by continent in 2004	80
Figure 15. Table grape production of the 12 leading countries in 2004	80
<b>Figure 16</b> . Evolution of the world-wide consumption of fresh grapes since 1986	81
Figure 17. Consumption of fresh grapes distributed by continent in 2004	81
Figure 18. Consumption of grapes of the 12 leading countries in 2004	82
<b>Figure 19</b> . Evolution of the world-wide wine production since 1976	82
Figure 20. Production of wine distributed by continent in 2004	83
Figure 21. Wine production of the 12 leading countries in 2004	83
Figure 22. Wine consumption of the 12 leader countries in 2004	84
Figure 23. Difference between wine production and consumption for the main	
producing countries in 2004	85
Figure 24. Evolution of the world-wide dried grapes production since 1986	85

Figure 25. Production of dried grapes distributed by continent in 2003	86
Figure 26. Dried grapes production of the 12 leading countries in 2003	86
Figure 27. Evolution of the world-wide dried grapes consumption since 1986	87
Figure 28. Consumption of dried grapes distributed by continent in 2003	87
Figure 29. Dried grapes consumption of the 12 leading countries in 2003	88
Figure 30. Evolution of the Spanish table grape production since 1985	91
<b>Figure 31</b> . Production of the different types of grape-derivatives in Spain (2002-03)	93
<b>Figure 32</b> . Evolution of the Spanish production of the main wine types since 1992	93
Figure 33. Main wine producing regions in Spain	96
Figure 34. Several steps –centrifugation, filtration and immunoaffinity column	
clean-up- in the OTA analysis of wine	126
Figure 35. Location and logotypes of the Designations of Origin studied in this	
thesis	133
Figure 36. Common genera isolated from food	159
Figure 37. Amounts of solute (glycerol or glucose) necessary to make up 250 ml of	
SNM medium at different $a_{\rm w}$	163
Figure 38. Conidiophores of Aspergillus section Nigri under stereomicroscope	173
Figure 39. Location of the sampled areas in Spain	177
Figure 40. Grapes at a) veraison and b) near harvest	179
Figure 41. Sampling plan showing the points in the field along the two diagonals,	
where grapes were recollected	180
Figure 42. Berries onto DRBC plates	180
Figure 43. Infestation of berries. a) Grape berries on DRBC infected by several	
fungi, after 7 days incubated at 25 °C; b) Black aspergilli infecting	
grapes on DRBC; c) Colonies of A. niger aggregate growing on CZ	181
Figure 44. Different steps in the extraction method of OTA from culture	182
Figure 45. Main climatic regions in Spain	183
Figure 46. Annual mean temperature (°C)	184
Figure 47. Annual mean precipitation (mm)	185

Figure 48. Percentage of the main fungi isolated from grapes in each of the	
vineyards sampled in 2004	231
Figure 49. Principal factors influencing fungal growth and mycotoxin production	244
Figure 50. Damage (d, e, f) and undamaged (a, b, c) grapes after seven days of	
incubation at 30 °C and at different R.H: 80 % (a, d), 90 % (b, e) and	
100 % (c, f) R.H	262
Figure 51. Botrytis infection in a bunch of grapes	425