Chapter 4
ESCi Multi-Mode Operation

For ESCi operation, the instrument source is fitted with both the ESI probe and the APCI corona discharge pin. When acquiring data, the instrument alternates between ESI and APCI operation in a single run by switching between the electrospray capillary voltage and the APCI corona discharge pin current under the control of MassLynx.

4.1 Preparing the Instrument

Warning: *To avoid electric shock, ensure that the instrument is in Standby before starting this procedure.*

1. In the MassLynx Tune window, click Press for Standby, and confirm that the adjacent instrument status indicator shows red.

2. If the APCI probe is fitted to the probe adjustment flange, remove it (see Section 2.1.1), and fit the ESI probe (see Section 2.1.3).

3. If the APCI corona discharge pin is not fitted to the source, fit it (see Section 3.1.2).

4. If the ESCi multi-mode operation option has not been previously installed on the instrument, use the ESCi option key disk to upgrade MassLynx on the MassLynx PC; follow the on-screen instructions.

    Note: *If this software upgrade has not been installed, the ESCi option will not be available in the MassLynx Tune window.*

4.2 Tuning the Instrument

1. In the MassLynx Tune window, select Options > Multiple ion modes > Dual ES/APcI, to display the ESCi Source page (Figure 4-1).
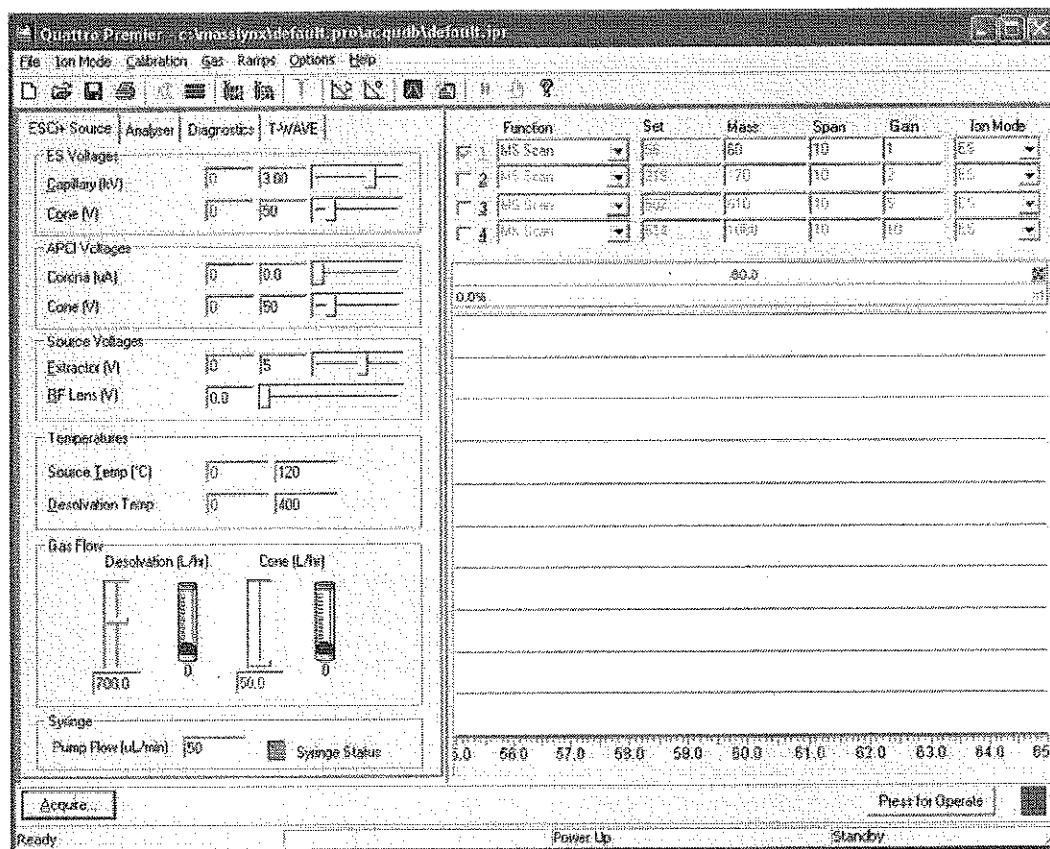

Figure 4-1 Tune Window ESCi Source Page

2. On the menu bar, select Ion Mode > ESCi+ to enable the positive ESCi ionization mode.

3. To tune the instrument for ESI mode:

   a. Select ES in the Ion Mode drop-down list for Function 1.

   b. Tune the instrument for ESI MS operation (see Section 2.2.1).

4. To tune the instrument for APCI mode:

    a. Select APcI in the Ion Mode drop-down list for Function 1.

    b. Set the APCI Voltages Corona (μA) parameter to 5.0.

    c. Follow the procedure described in Section 2.2.1 for ESI tuning, optimizing the APCI Voltages Corona (μA) parameter instead of the ES Voltages Capillary (kV) parameter.

4.3 Data Acquisition

1. In the MassLynx Tune window, select Options > Multiple ion modes > Dual ES/APcI, to display the ESCi Source page.

2. On the menu bar, select Ion Mode > ESCi+ or Ion Mode > ESCi- to enable the positive or negative ESCi ionization mode respectively.

3. Select the required mode (ES or APcI) for each Function from the Ion Mode drop-down list. Any combination of ES and APCI modes may be selected.

   Note: The entries are color-coded; red denotes an ESI acquisition, blue an APCI acquisition. These colors are also initially applied to the resulting peaks displayed in the Tune window. You may modify the peak colors using the Customise Plot Appearance dialog box (see Section C.16.2).

4. In the MassLynx window create a Sample List (refer to the *MassLynx User's Guide* for comprehensive information on creating a Sample List).

5. To start data acquisition, click ▷ (see Chapter 5 for details).

   Note: In the Tune Window, the ESI readbacks are valid only during ESI acquisition and, likewise, the APCI readbacks are valid only during APCI acquisition.