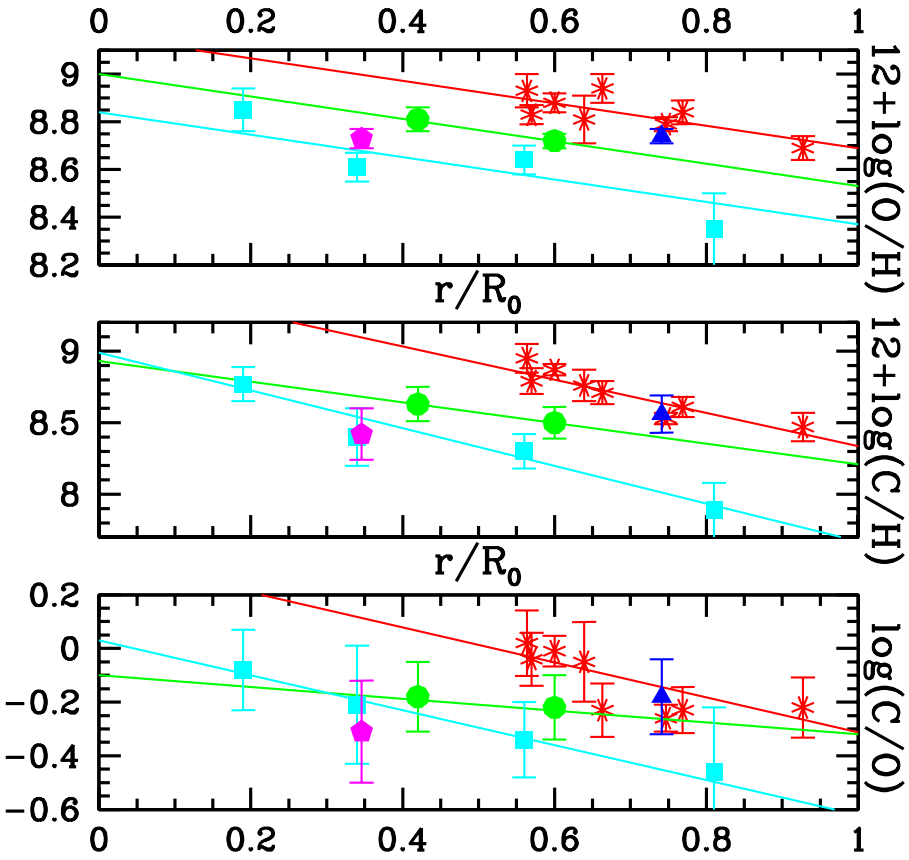

Fig. 9. Chemical abundance ratios of H II regions normalized to galactic photometric radius (R_0) for each galaxy (see Tables 1 and 2). Milky Way: red asterisks (see Figure 7). Others spiral galaxies: symbols as Figure 8. Lines represent the Galactic disk gradients of M101, M33, and the Milky Way. The color figure can be viewed online.

necessary in order to sort out possible differences in the galactic formation and evolution relative to that of the Galaxy and to understand the peculiar behavior of metal-rich stars and H II regions, see Carigi (2008), as well as to test stellar yields for $Z > Z_{\odot}$.

The present paper only includes specific models for our galaxy. We now present a preliminary discussion on the probable relevance of our results to the study of other spiral galaxies. It is beyond the scope of this paper to produce models for other galaxies and therefore to present a detailed comparison with the results derived by other authors, e.g., Chiappini, Romano, & Matteucci (2003b); Mollá & Díaz (2005); Renda et al. (2005); Yin et al. (2009); Marcon-Uchida, Matteucci, & Costa (2010); Magrini et al. (2010), using different sets of data. In future papers we plan to present detailed models for M31 (Meneses-Goytia, Carigi, & García-Rojas 2011) and M33 (Robles-Valdez, Carigi, & Bruzual 2011, in preparation).

6.2. *The transition region between the inner disk and the Galactic bulge*

A fraction of the stars observed in the direction of the Galactic center might have been formed in the true bulge and another fraction in the inner Galactic disk. Therefore we considered interesting to compare our IWY model for the innermost part of the disc with the abundances for these stars.

Since the inside-out model adopted as the Galactic formation scenario in this paper diverges for $r = 2$ kpc (see § 2), we obtained the chemical evolution of the innermost ring of the Galactic disk that our GCE model is able to consider, $r = 3 \pm 0.5$ kpc (with a 1 kpc width). The Galaxy at this radius formed efficiently: during the first Gyr the halo formed with a collapse time-scale of 0.5 Gyr and then the disk formed with a formation time scale of 1.0 Gyr. At the end of the evolution ($t = 13$ Gyr) the gaseous mass amounts to 7% of the baryonic mass inside the $r = 3 \pm 0.5$ kpc ring.