Are all the coloured galaxies the same?

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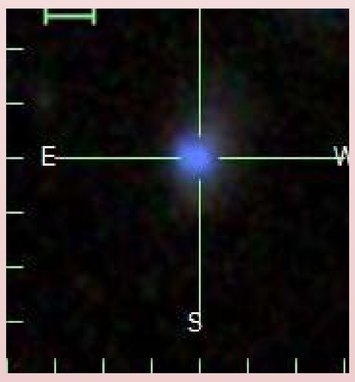
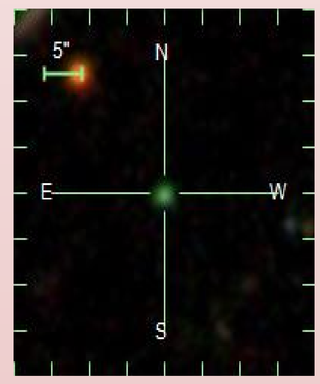
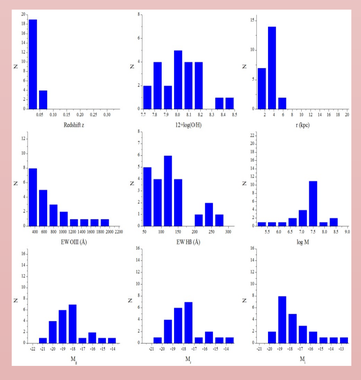
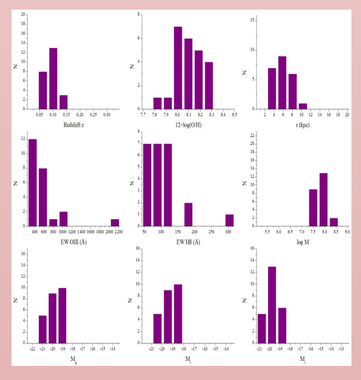
The coloured galaxies are objects with small size and a characteristic colour, mainly green, purple, pink, brown or bright blue (Izotov et al. 2011). The first one discovered where green and were called green peas (Cardamone et al. 2009). Their colour are due to the intense [OIII]λ5007 line is redshifted to the green band for the SDSS data. All the coloured galaxies have large EW of this [OIII] line likely due to the fact that they are suffering a very strong burst of star formation (Amorin et al. 2010) . Their metallicities are lower than the solar, and they are less massive than the Galaxy (Amorin et al. 2012). Although Izotov et al. (2011) said that all the coloured galaxies are the same, a closer examination of their data indicates a large dispersion.





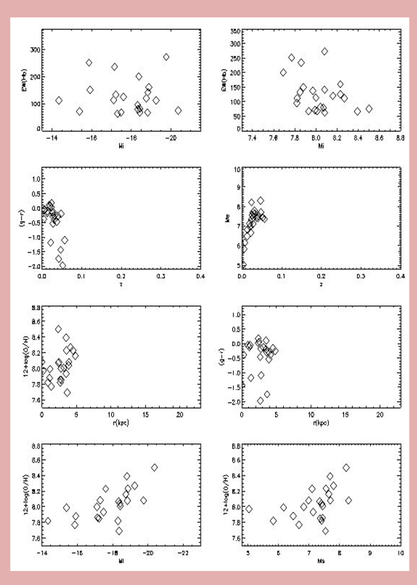
We selected a sample of coloured galaxies from the SDSS data base from their large EW([OIII]) values and their point-like appearance and colour and divided the sample in three colours: purple (24), blue (23) and green (34). For this sample we studied the redshift, size, metallicity, stellar mass, the equivalent width of ([OIII]) and Hβ and the absolute magnitudes for each colour (Hidalgo-Gámez et al., in preparation) .

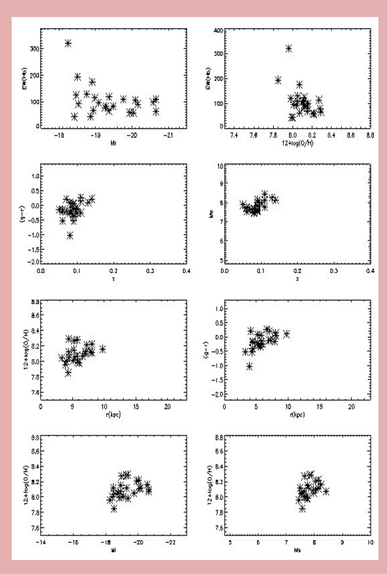


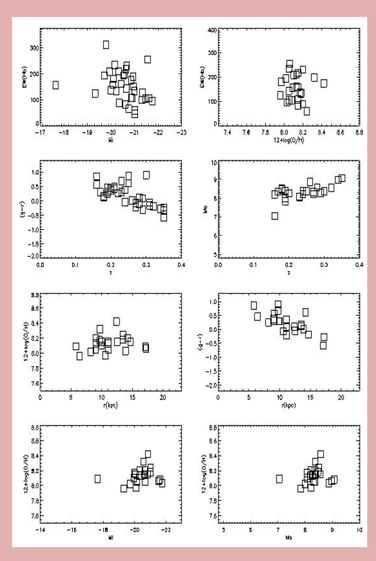


Ave.e value	Blue marbles	Purple marbles	Green peas
z	0.03 (0.01)	0.09 (0.01)	0.25 (0.09)
12+log(O/H)	8.03 (0.2)	8.1 (0.2)	8.14 (0.01)
Log (Ms)	7.2 (0.3)	7.8 (0.07)	8.4 (0.1)
R(kpc)	8 (1)	6 (2)	12 (3)
M	-17.7 (2)	-19.2 (0.7)	-21.3 (0.5)
EW(Hβ)	124 (66)	104 (58)	152 (59)

The Green Peas are the most distant galaxies, and also the largest, brightest and more massive due to the efecto of the Malquist bias. On the other hand, the blue marbles are the closest ones and they are the smallest, the dimmest and the less massive. There are no blue marbles as large or bright as the green peas type. As the EW(Hβ) is related with the age of the starburst (Copetti et al. 1985), from ours plots it can be concluded that the green peas has younger starbursts and more intense and the purple marbles has the oldest and less intense burst of star formation.







Scaling relationships between some of the paremeters are fundamental to understand the evolution of these galaxies. It can be seen the Green peas do not have the same behaviour that the blue and purple marbles for most of the relationships. As can be seen, the green peas do not have the same steep than the blue and purple marbles for most of the relationships. This could be a consequence of the nature of the starburst process, or because we are working with diiferent types of galaxies..

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