To find the function $R(C)$ from the given equation $\frac{dR}{R} \Big/ \left(\frac{d\left(\frac{C}{R}\right)}{\frac{C}{R}}\right) = E$, we will need to solve the differential equation step by step.

1. First, rewrite the equation in a more manageable form:

$$\frac{\frac{dR}{R}}{\frac{d\left(\frac{C}{R}\right)}{\frac{C}{R}}} = E$$

2. Let $x = \frac{C}{R}$. Therefore, $\frac{d\left(\frac{C}{R}\right)}{\frac{C}{R}}$ can be written as $\frac{dx}{x}$.

3. Now substitute this back into the equation:

$$\frac{\frac{dR}{R}}{\frac{dx}{x}} = E \implies \frac{dR}{R} = E\frac{dx}{x}$$

4. Integrate both sides to solve for R in terms of x:

$$\int \frac{dR}{R} = E \int \frac{dx}{x}$$

$$\ln|R| = E\ln|x| + \ln|k|$$

where k is the constant of integration.

5. Simplify the equation using properties of logarithms:

$$\ln|R| = \ln|x^E| + \ln|k|$$

$$\ln|R| = \ln|kx^E|$$

6. Exponentiate both sides to solve for R:

$$|R| = |kx^E|$$

$$R = kx^E \text{ or } R = -kx^E$$

7. Replace x with $\frac{C}{R}$ to find $R(C)$:

$$R = k\left(\frac{C}{R}\right)^E$$

8. Solve for R:

$$R^{1+E} = kC^E$$

$$R = \left(kC^E\right)^{\frac{1}{1+E}}$$

$$R = k^{\frac{1}{1+E}}C^{\frac{E}{1+E}}$$

Let $k' = k^{\frac{1}{1+E}}$. The function $R(C)$ can be expressed as:

$$R(C) = k'C^{\frac{E}{1+E}}$$

So, the function $R(C)$ is:

$$R(C) = k'C^{\frac{E}{1+E}}$$

where k' is a constant.