

1135-35-2959

**Rachidi B Salako\*** (rbs0016@auburn.edu), Auburn University, Auburn, AL 36849, and  
**Wenxian Shen** (wenxish@auburn.edu), Auburn University, Auburn, AL 36849. *Parabolic-elliptic chemotaxis model with space-time dependent logistic sources on  $\mathbb{R}^N$ . I. Persistence and asymptotic spreading.*

We consider a parabolic-elliptic chemotaxis system with space-time logistic source function on  $\mathbb{R}^N$ , and study : (i) Pointwise and Uniform persistence of solutions with an explicit uniform lower bound in the later case. (ii) Asymptotic spreading of solutions with compactly supported initial functions and prove that there are two positive constant  $0 < c_-^* < c_+^* < \infty$  such that for every  $t_0 \in \mathbb{R}$  and every nonnegative initial function  $u_0 \in C_{\text{unif}}^b(\mathbb{R}^N)$  with nonempty compact support, we have that

$$\lim_{t \rightarrow \infty} \sup_{|x| \geq ct} u(x, t + t_0; t_0, u_0) = 0, \quad \forall c > c_+^*,$$

and

$$\liminf_{t \rightarrow \infty} \sup_{|x| \leq ct} u(x, t + t_0; t_0, u_0) > 0, \quad \forall 0 < c < c_-^*.$$

We also discuss the spreading properties of solutions with front-like initial functions. (Received September 26, 2017)