$$List_j.\,distance = H_{level} - CH_{j.level} + 1 \quad (5)$$

$$List_j.\,flag = distance \quad (6)$$

Here, CHj. Level is the hops amount of CH with Identity j, *flag* represents the variable denotation the frequency of information in present thing of *List*$_j$, and *lifespan* is a variable denotation the period intermission from present time to end time that obtained similar information. And these two variables are utilized to manage the dynamical alteration of present list. While CH node has been resolved, the list should be also communicated to recent CH.

Step2: Filtering and transmitting message: Network will go to communicating stage, with in this stage; several repeated duplicated messages will be created, thus need proficient filtering function.

Here, CH will rapidly achieve the filtering function while it obtains a message. The filtering node j will look around its list, and then obtained information is being compared with each item of List$_j$. If there is not any items' satisfied equalling to the present information, this information will be communicated at once; next this information will be upended to the list.

Active adjusting the list's length: Here, the function is to energetically revise the length of information list. To conclude this task, twice thresholds are distinct: one is to referee whether dilutes the distance of list; the other is to referee whether extends the distance of list.

4. Simulation Analysis

The REDC through itself can be utilized as a proficient routing metric because it efficiently catches not only the delay of the queue; however, the retransmission delays. We employ NS2.35 simulation results for a WSN. Here, the 50 sensor nodes are arbitrarily distributed in a 600x500 m^2 topology area with required modification to preserve the property. The node communication range is 200m, the size of the packet is 512 bytes, and we utilized constant-bit-rate flow.

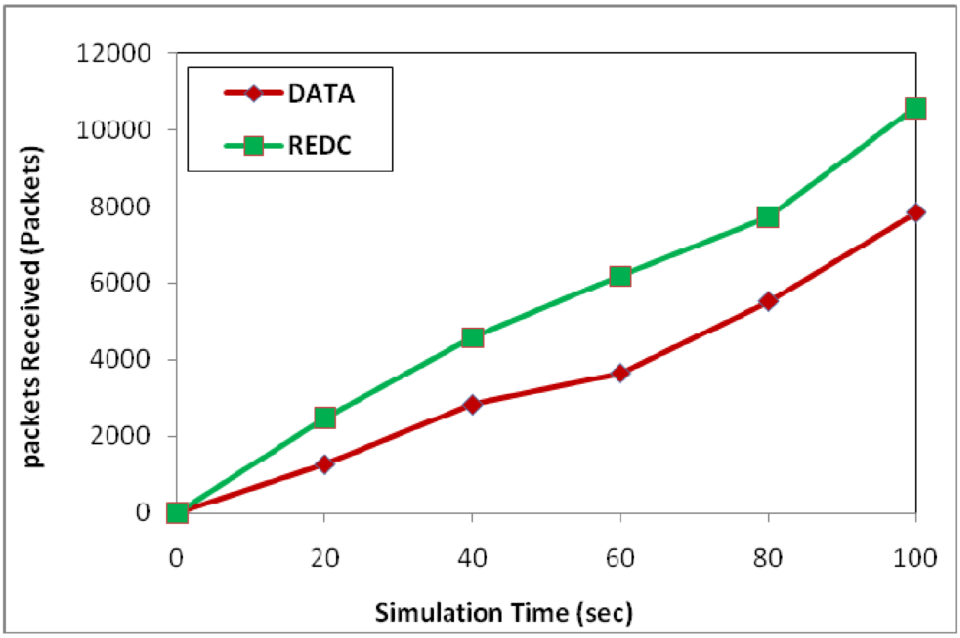

Fig. 3. Packet Received of DATA and REDC Scheme.

Packet received rate is represented as the part of the total of effective packet transmitted to the amount of packets received. Fig. 3 illustrates the packet received rate of REDC and DATA scheme. The REDC scheme equates to the DATA, the REDC offer better packet received rate in the network. Since, REDC scheme select the collector node by ACO optimal method. Therefore, increase the routing efficiency.

Fig. 4 shows the average delay rate explicitly around recognized with the time period essential to distribute the whole data. This figure proves the REDC have less delay time than the DATA scheme. Because of REEC scheme verifies the collector node through the bivariate polynomial key verification. So, REDC approach transmit the data via reliable collector node.

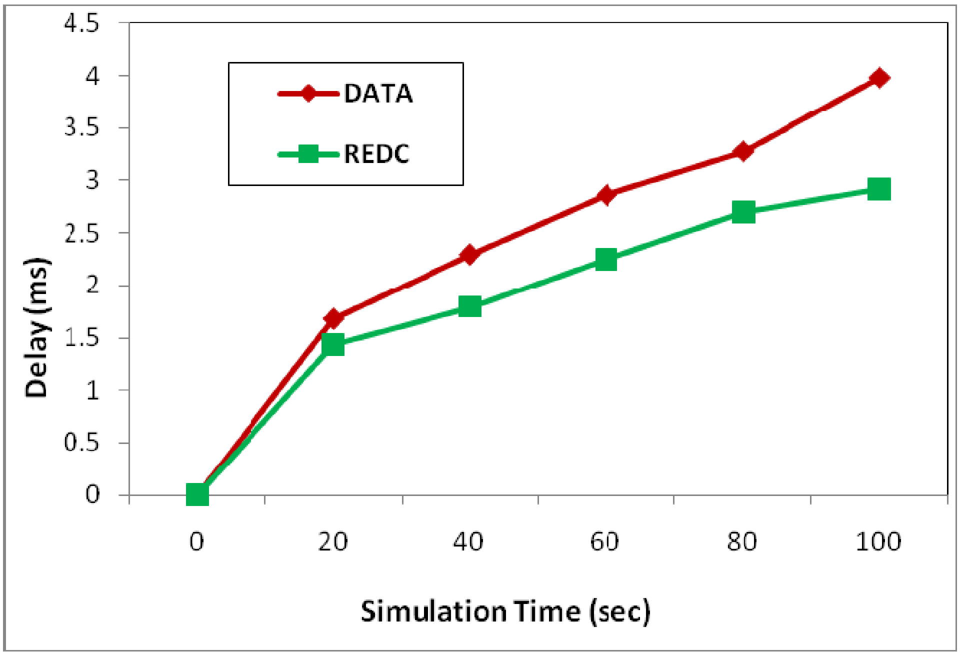

Fig. 4. Delay of DATA and REDC Scheme.

Fig. 5 demonstrates the Packet loss of REDC and DATA scheme. The REDC scheme diminishes the loss of data packet since it chooses to CH by distance, energy and delay in the network. But, DATA has more packet losses. Thus, DATA increases the packet losses in the network.

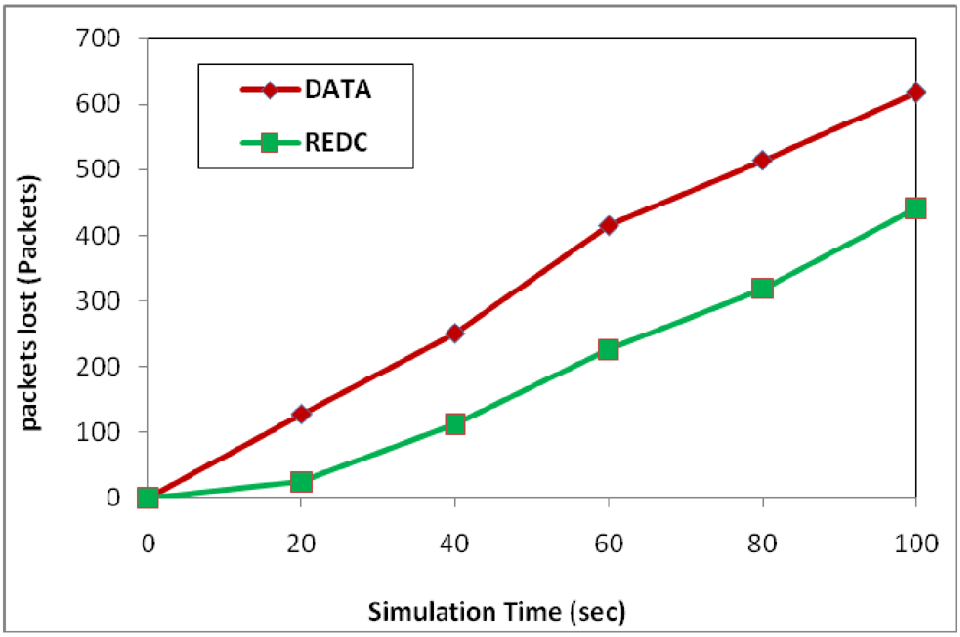

Fig. 5. Packet Loss of DATA and REDC Scheme.

Remaining Energy represents the amount of energy remaining in a network. Fig. 6 illustrates the Remaining energy of REDC and DATA scheme. The REDC scheme equates to the DATA, the REDC offer better remaining energy since the CH forward the data through reliable nodes. As a result enhances the remaining energy in the network.

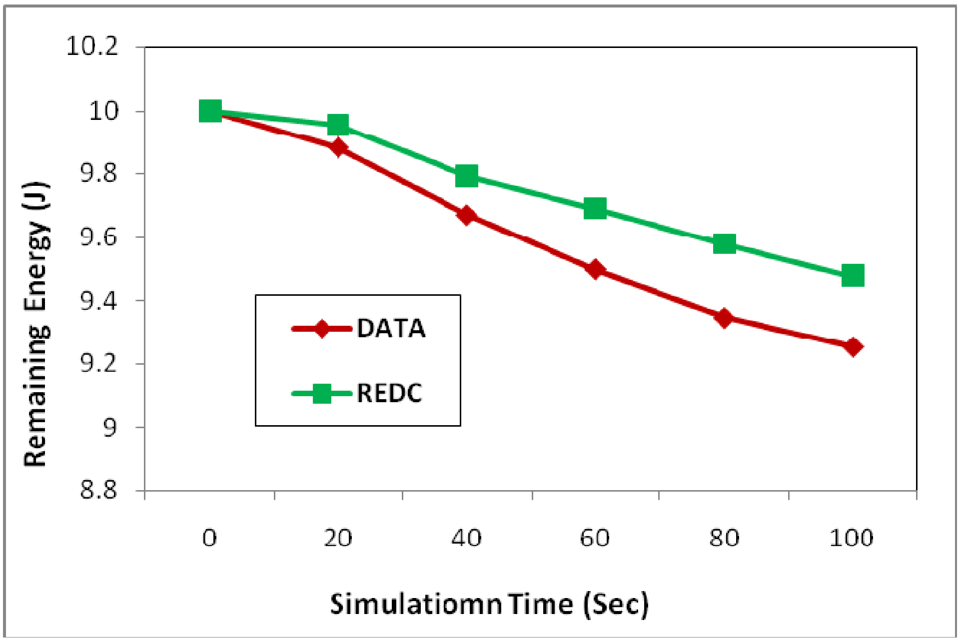

Fig. 6. Remaining Energy of DATA and REDC Scheme.

Fig. 7 explains an data collection accuracy of DATA and REDC approach. In REDC, unreliable nodes are detected by bivariate polynomial key verification method. ACO method also increased the routing efficiency. As a result, REDC approach increases the accuracy compared to the DATA approach.

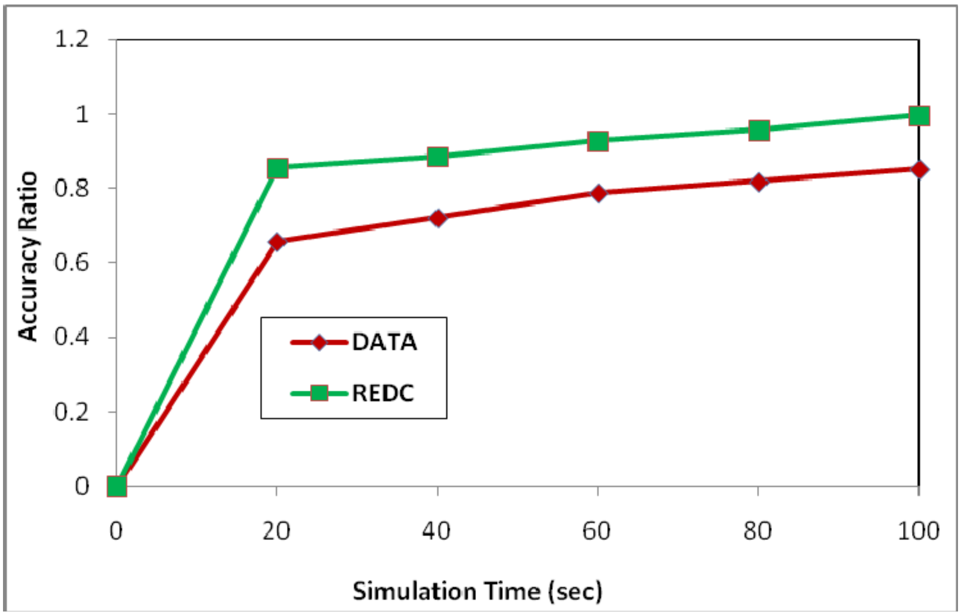

Fig. 7. Accuracy Ratio of DATA and REDC Scheme.

5. Conclusion

In this paper, the communication expenditure. In this paper, an Reliable Data Collector based Efficient Data Collection for Improving Energy Efficiency in WSN. The ACO method is used for selecting reliable data collector and it can achieved an efficient path. Bivariate polynomials key verification is used for verified the reliable collector. Active list will be generated in filtering node to accumulate history messages yet communicated through this node. The entire messages will be estimated whether repeated duplicated or not along with the messages in list. Thus, traffic of network can be considerably diminished that in revolve expands the lifespan. The simulation results demonstrate which the REDC scheme improved an accuracy of data collection and it can raised a remaining energy. In addition, REDC scheme minimized both the delay and the packet loss rate.

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